

# The National Locksmith®

**MORE PAGES,  
MORE ARTICLES,  
MORE INFORMATION!**  
**CODES: Kenworth G Series**  
pages 86-101

January 1994  
Volume 65, No.1

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Man Trap**  
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NEW...  
EVERY MONTH...

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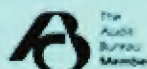
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**Editor/Publisher** Marc Goldberg  
**Managing Editor** Tom Seroogy  
**Production Director** Sandy Kucharski  
**Art Director** Jim Darow  
**Technical Editor** Robert Sieveking  
**Technical Writers** Carl Cloud, Eugene Gentry, Jake Jakubowski, Dale Libby, Joseph Locke, Dave McOmie, Sara Probasco, Jack Roberts, Shirl Schamp, Rick Segerstrom  
**Director of Sales & Marketing** Jeffrey Adair  
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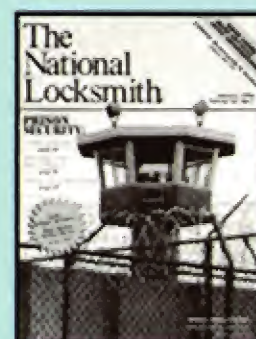
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# COMMENTARY

***More pages . . . more articles . . .  
more information . . . more codes!  
More value!***

Welcome to 1994! I always seem to start off my January *Commentary* by saying that it is hard to believe that the New Year is upon us already. This year is no exception!

The past year was a difficult one for many of you. The economy has been tough for quite a while now. But 1994 holds bright promise! The economy over all is opening up and growing. And you already know about our plans for a new publication called CRIME PREVENTION. This new vehicle will help educate millions of people about who locksmiths are what how you can help them in the fight against crime. Surely, this will help bring you additional business.

Copies of CRIME PREVENTION are available to you to give away to your customers and prospects to better inform them about your services. See the advertisement in this issue to order your very inexpensive copies.

Also, starting with this issue, *The National Locksmith* has undertaken some very major changes which will benefit you. Our slogan for 1994 is: "*More pages! More Articles! More Information!*"

Let me explain the changes to you. Some of our readers have told us that they thought the magazine was too filled with advertising. Our response to that, starting with this issue, was to expand greatly the number of editorial pages in each issue. Now you will see that this policy has allowed us to add a number of new features and departments to your favorite magazine.

For example, readers have been asking us for a long time to regularly print codes in the magazine. Since we now have the space available, you will see that we are running an important code series in most all of the issues we publish. This edition contains a new code series for Kenworth trucks. These G Series codes are new and they begin on page 86. Next month we'll have different codes, and we'll continue to give you new codes just about every month of the year. This will help you build your collection and



Marc Goldberg  
Editor/Publisher

stay on top of new keys. Codes alone will be worth the subscription price.

Also new starting this month is a column called TEST DRIVE. In this feature, we will take a different industry product every month and we'll take it for a spin around the block. By putting tools, machines and interesting products through their paces, we'll be able to share with you the results. This will make your "to buy or not to buy" decisions easier to make. The TEST DRIVE column will appear each month on the back page of the magazine to make it simple to find. A special note calls out our findings on the product, so at a glance you know the results of the TEST DRIVE.

What else is new? You'll find that our cover themes are better detailed with in-depth articles to help you make more money. This month's theme is Prison Security and you will find excellent articles beginning on pages 32, 35 and 37.

Also, each month's issue features a Mini-Section focusing on an important industry topic. This month's Mini-Section is on Wholesalers and their impact on your professional life. The section, which starts on page 40 includes an overview article, and then a useful chart which explains at a glance who many of the distributors are, and what products and services they offer. Stay tuned as every month we give you this kind of usable information for cover and Mini-Section themes.

Another new column is called THRU THE KEYHOLE. In this section, you will read about companies and products which may well help you increase your own profitability. We give you information on what products are available, and how to get them.

What it comes down to is that *The National Locksmith* promises to give you the absolute best value imaginable for your subscription dollar. More pages, more articles, more information, more codes . . . more value!

*Marc Goldberg*



# LETTERS

## Comments, Suggestions and Criticisms

*The National Locksmith* is interested in your view. We do reserve the right to edit for clarity and length. Please address your comments, praise, or criticism to Editor, *The National Locksmith*, 1533 Burgundy Parkway, Streamwood, IL 60107. All letters to the editor must be signed.

### Reader Questions Tip

Dear Marc:

Referring to a Technitip printed in the June 1993 column. According to Mr. Richard Cerbasie of Connecticut, a rubber plumbing washer is an outstanding substitute for a mortise cylinder spacer ring. Considering that according to his letter, that this door was already subjected to vandalism, the repair should have added additional security and protection. While anyone can run out of proper supplies on any given day, however, this tip was considered a permanent repair, without need of those "special spacers and spring rings". When I encounter this in the field, I automatically correct it, and charge accordingly. I explain all extra charges to the customer. While I do not go out of my way to speak badly of previous servicemen, the explanation of the extra charges speaks for itself.

Les Lemley  
Connecticut

### Safemen Beware

Dear Marc:

An open letter to all locksmiths who do safe work;

Earlier this year I thought I'd already tackled the toughest safe I'd ever worked on, at least I'd hoped so. Little did I know that a Shaw Walker fire safe would blow that theory "sky-high."

There it was, waiting for me on a pallet; a standard Shaw Walker fire

safe made in Muskegon, Michigan.

After checking my safe books, speaking with Dave McOmie and consulting with Shaw Walker, it seemed like a cinch. Wrong! No one would have known that there could have been anything unusual about this safe.

After drilling, sighting the wheels and transferring to the drop in point I was in.

As I removed the back door cover I noticed several wires for an upper and lower relocker there. What followed will be forever etched in my mind.

As I released the tension of the relocker wires there was a huge explosion! Dazed, confused and bruised I picked myself up off my back side, ten feet from where I just was. The odor was overwhelming, my ears were ringing and my throat and eyes were burning from the blast of a detonating charge and two tear gas canisters. As I looked at the safe the back door cover was bent, the bottom of the safe door was disfigured and half the cement insulation was scattered in a twenty foot radius.

I spent the next twenty-four hours with ringing ears, imagining the outcome if I had been in a little different position without the back door cover as a partial shield. I would probably have been typing this letter one handed.

Please print this letter so that someone else may be spared serious injury. Never judge a safe by it's cover, expect the unexpected and never assume anything!

Tim Nycum  
Michigan

*Editor's Note: Both Dave McOmie and I were startled when we received your letter, and we're happy you were not hurt seriously.*

*The problem with booby trapped safes is that you'll never know when*

*you're working on one. Booby trapping is a since outlawed aftermarket safe addition. Neither manufacturer nor safeman can tell when or where you'll come across one.*

*All safemen should take your type of mishap seriously.*

*Thank you for your letter.*

### Addressing DND Blanks

Dear Marc:

In reference to J.C. Lancaster's letter regarding the (DND) Do Not Duplicate Controversy. First let me say as a professional I take the statement/order on the key as what it means (do not duplicate). I do not duplicate without the authorized signature of the residential or commercial owner of the entity or as it is stated on U.S.P.S. keys which I have been asked to duplicate many times in the past.

My business decision on this is based on governmental law and my Bond Certificate as well as my goal to hold up for the honest and integrity of my field.

In reference to a form of written authorization this form is already drafted by HPC and sent with the KeKab 200 for those that have never had the opportunity to see one. I use this form for commercial as well as governmental and residential use, since I realize that trust and security work coordinately. I also explain this to my customers. I found that I've gained trust, since they know from my printing in the paper my policies regarding car opening and this matter also I have and respect my two responsibilities to serve but protect. I have no controversy with (DND).

Willie R. Bowen  
Virginia







## NOTHIN' TO TURN YOUR NOSE UP AT

*"Even though electronic technology may still be in it's infancy; things we used to consider science fiction are realities today!"*

In 1972, I bought my first "electronic" calculator. It was rechargeable, weighed about 12 ounces, and cost me (with the charger) \$99.99! I thought it was a pretty nifty gadget, and carried it with me whenever I went out to give an estimate, even though it had to be recharged every day.

Today, I can buy a calculator at the local drug store for under five bucks that will out perform the super-duper, rechargeable, calculator that I bought in 1972 by a mile. And, it will do it on "solar" power.

About 9 years ago I bought my first electronic typewriter from Sears. It cost almost \$600.00. The word processor that I am writing this article on cost me \$389.00 at Wal-Mart. On the performance side, it easily outstrips my old "electronic" typewriter.

I believe the majority of us take the rapidly changing technology in the electronics industry for granted. We push a button on our microwaves to heat water for our morning coffee. We

go out to start our car, the engine of which is controlled by an on-board "computer." We use credit cards that are "read" by scanners, that are connected electronically to computers, that automatically bill us for our purchases. Regardless of our awareness, or lack thereof, electronics influences our lives in countless ways ... everyday.

The really exciting part is, that influence is just beginning. Even though electronic technology may still be in it's infancy; things we used to consider science fiction are realities today! If you don't believe me, go down to your local AT&T phone store, and tell them you want to buy a videophone. They'll sell you one!

Now, as a locksmith, what do you think the "electronics revolution" is going to do to your business? I'll tell you what I believe it will do. I believe it has the potential to make you more money than you ever thought possible. Provided you are willing to "grow" a little. By that, I mean learn a few new tricks, or "stretch" your

abilities just a little bit.

I'm not a Gloom 'N' Doomer, who is going to tell you that you're going down the tubes if you don't get into the electronic side of locksmithing. No way! There are millions upon millions of "standard" mechanical locks out there that are going to need servicing, re-keying, and repair for a long, long, time to come. However, unless you're willing to at least explore and think about the possibilities of what electronics can do for you ... unless you are willing to at least consider the potential PROFIT that you can make from the sales, service and installation of electronic locking mechanisms ... then I think your collar's too tight!

With the strides being made in the electronics phase of the locksmithing industry, installing electronic locks is simpler than ever before. If you've ever replaced a plug on a lamp cord, or put a new outlet box in your shop, or wired lights for the interior of your service van ... then, generally speaking, you can install

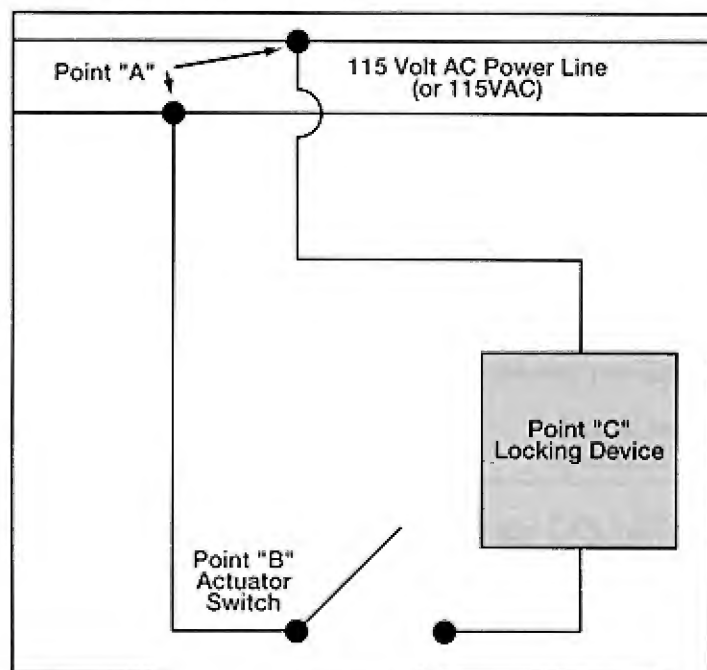


Illustration 1

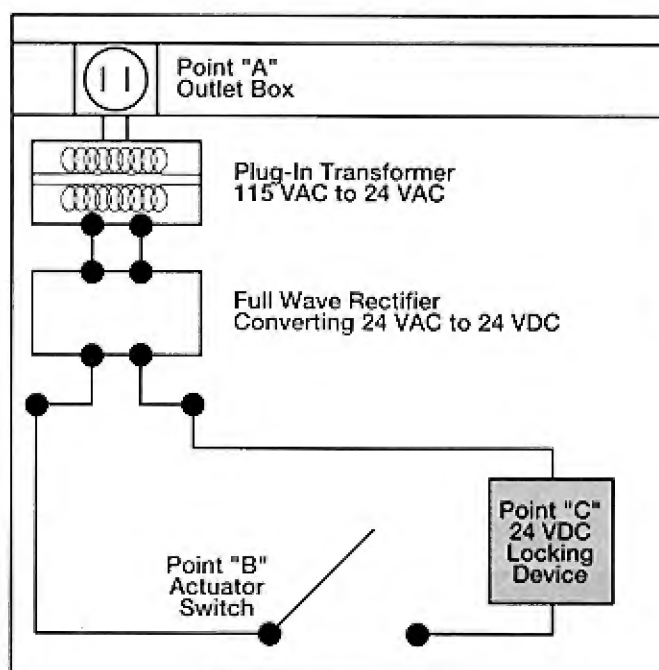


Illustration 2



electronic locks. You don't need to be an electrical engineer.

What you do need to be is willing. Willing to try something new. Willing to make more money. Willing better yourself, and be more knowledgeable than you are now. And, above all, willing to recognize that there are opportunities for the application of electronics on the very jobs you are doing now today.

Most of the electronic devices you will be called upon to install, will consist of some sort of "security" locking device for a single door, or entrance. Maybe your customer wants to keep their employees from "forgetting" to lock a door when they leave work, or they need to restrict the people that are coming into their plant, shop or business. Whatever your customer's need, you can fill it if you are willing.

The electric locks that you buy will generally come with detailed installation instructions. You know, "Red wire to terminal #5, blue wire to terminal #6," etc. Should you encounter an installation problem, many manufacturers have 800 "Help" lines, staffed with very knowledgeable people to help talk you through your difficulty.

I think the main thing that you need to be aware of, and probably already are, is that for any electronic lock or electrical device to work, you need to "complete" a circuit. That is, if you run a wire from one point (Point "A") to a switch (Point "B"), to the lock (Point "C"). Then the wire has to return to Point "A", so that your circuit is complete. The switch acts as the "breaker", or control point for the circuit. Illustration one, shows a simplified lock wiring diagram.

With the switch "open" (as shown in the illustration), the lock can either be locked, if it is "fail-secure" (locked when the power is off), or unlocked if it is "fail-safe" (locked only when the power is on). Either way, the switch is the control point. It is here that you lock or unlock the door. It doesn't matter whether you're using an electric strike, an electric deadbolt, or an electromagnetic lock. What will, most likely, change is the type of "switch" you use. If it is a lock that you want to control solely from the inside then you might use a momentary contact push-button, or rocker type switch. If you wanted access from

outside as well, you might install a card reader, or a touch pad in addition to the "exit" switch.

In illustration one, I showed the primary power source as a 115VAC line, which means the lock would have to operate on 115 volts of alternating current. Since the electronic locks (or strikes) that you are going to be installing are usually 12, 16, or 24 VAC (or VDC), you need to reduce the amount of current going to the lock.

That current reduction is accomplished by installing a transformer in the line between the power source, and the switch to the lock. That transformer can be either a "plug-in" type (which is the easiest to use: simply attach the leads and plug it into the nearest electrical outlet), or a transformer that is "hard wired" into the primary power source. The important consideration is to make sure that the transformer matches the voltage requirements of the lock that you are installing. If you're not sure, ask your supplier, or call the manufacturer.

If you are installing a 24VDC lock (that is, a lock that operates on 24 volts of direct current), then you need

to go one step further, and install a "full wave rectifier" in your line between the transformer and your lock. The rectifier can be attached directly to the "load" side of the transformer (always attach RED leads from rectifier to transformer), and then the line going to the lock may be attached to the "out" side of the rectifier. The rectifier converts the AC current coming out of the transformer to DC current. It can also be used to silence the "buzz" on some AC locks. Illustration two shows our locking device with a plug-in transformer and a rectifier added.

Compare the two illustrations and you will see that although I added a transformer and a rectifier, the circuit is the same. "A" to "B" to "C", and back to "A". Regardless of the number of "branches", i.e., switches, lights, or monitors you decide to equip your circuit with, the "A, to B, to C and back to A" routing still applies.

Try looking at it this way: if you had only one, long, piece of wire to run, to make this lock work, you would run it in a large loop. You would start at your primary power source, go to your transformer, to your rectifier,



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to your switch, to your lock. Then through the lock, and back to the rectifier, to the transformer, and back to the other side of your primary power source.

If you decide to try installing these locks, you'll find that "Electronic Locksmithing" is just like regular locksmithing (except more profitable); you learn the basics, couple that knowledge with good, common sense, add a smidgen of "tinker-ability" ... and you're installing electronic locks!

"O.K." you might be thinking, "If I wanted to do this, how much am I going to have to spend to 'tool up' for this kind of work?" That's the easy part. First off, you've already bought most of the tools that you'll need. In addition to standard hand-tools, you're going to need a pair of wire strippers/crimpers. You'll need various size wire connectors and ends. Some wire nuts, electrical tape, and a Volt/Ohm meter.

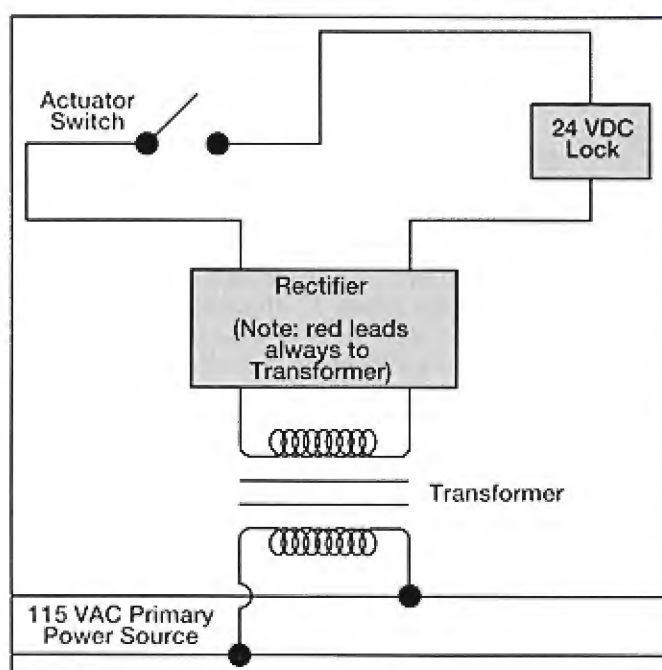


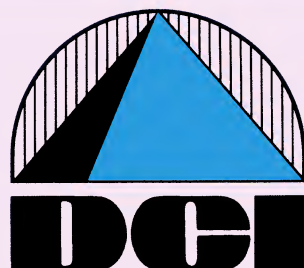
Illustration 3

Don't let the V/O meter scare you. They come with instructions and, with just a little practice, are fairly simple to use. Your total cost for all of the above can run less than \$50.00, if you're careful.

Your next step, of course, is actually lining up customers to do this type of work for. Where do you find them? You find them among your present clientele. You look for the need and fill it. If you see an electronic device on a door, ask the customer if it is working. If not, offer to repair, or replace it for them.

If a customer complains about being unable to keep unauthorized people out of their building, suggest an electric lock or strike. Ditto for the employer that complains about employees exiting the workplace through "restricted areas." The need is out there. The demand is growing everyday. You're already in a position to satisfy that need.

To show you how "simple" this type of work can be, and to help you realize just how much profit can be realized from selling and installing these locks, follow along next month, while I review two jobs that I recently installed for customers. 🔒



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# NEWSMAKERS

## New Products and Industry News

### Search Electronics SE 1000

The SE 1000 Simulated (Imitation) Video Surveillance Camera is definitely a scare-crow to burglars, shoplifters, vandals and hold-up men.



This camera offers exceptional realism, heavy gauge metal construction and a flashing red light. It operates on a 6v lantern battery. It has a simple installation with no electrical work necessary. It mounts easily in minutes on any surface. The required hardware and two eye-catching warning decals for doors or windows are included.

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### Rabbitsoft 's New Master 2000

Create a masterkey system using standard progression or rotating constant.

Create systems for Arrow, Schlage, Kwikset, Medeco and more, including IC core.

Create, recreate, or modify a masterkeying system. Print Change Keys, Pinning Charts, or an Entire System. View you system on-Screen. Add or Delete Modify Manufacturers, or Customers, and more. Display or print customer file. Modify printer codes for Dot Matrix or Laser.

For **FREE** Information  
Circle 382 on Rapid Reply

### Master Lock's Pro Series™

Master Lock introduces Weather Tough™ Pro Series padlocks, designed for industrial and commercial use. Master Weather Tough Pro Series padlocks have special, weather-resistant features, for a whole new level of performance and security: tough thermoplastic covers and cylinder dust caps prevent jamming from dust, dirt and other contaminant; flow-through debris channels move water and debris through the lock body and away from the locking mechanism, for trouble-free opening; shackles of extra-tough hardened BORON alloy steel provide up to 15,000 lbs. of resistance to cutting and sawing, more than twice that of standard steel shackles; dual steel ball-bearing locking protects shackles against pulling and prying.



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### American Device's Latch Retraction

All 4000 Series and 6000 Series American Device exit devices are now available with an electric latch retraction feature for added convenience and security. The UL-listed exit devices can be actuated by

card reader, time clock or push button, etc., and will electrically retract the latch on all concealed and surface vertical rod, rim or mortise lock exit devices.

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Circle 384 on Rapid Reply

### PSC's Portable Door Lock

Personal Safety Corporation, a manufacturer and marketer of high quality personal safety products, introduces the Secure® Portable Door Lock to help protect against home, apartment, or motel break-ins. This patented safety and protection device provides added security in seconds.



No tools are required for installation. The convenient, easy-to-carry size is ideal for home owners, renters, business travelers, college students, singles living alone, and vacationers.

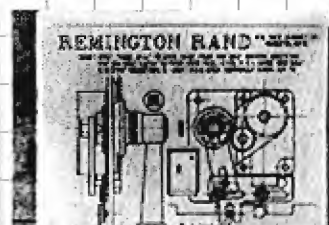
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### Willis Safe Drawings From Lockmasters

The Ed Willis collection of highly detailed safe door and lock drawings is now available from Lockmasters, Inc.

Ed Willis has extensively researched safes and locks over the years and continues to add to this rich

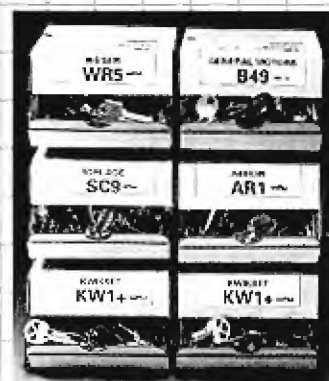
measurements down to springs and screws.



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### Jet's 250 Plus Program

With the ever increasing demand for popular key blanks packaged in a 250 pack, Jet Hardware has just introduced their new "250 PLUS" program. A heavy gauge steel rack has been manufactured to hold 6 of the new "250 PLUS" dispenser boxes to insure that they will not topple or be knocked over. The rack may be hung on peg hooks, screwed to the wall or it can be used free standing. The new dispenser box has a "zipper" type opener for the fold out door, and they are constructed of heavy-duty corrugated carton material.



A large stock number appears on the label along with a picture of the key and the section reference.

For **FREE** Information  
Circle 387 on Rapid Reply



*Continued from page 12*

### **Federal Lock's Series 200 Padlock**

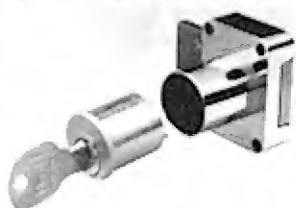
Federal Lock Company's Series 200, 2 7/8" wide square dimension padlocks offer a hardened solid steel lock body for enduring protection. A distinctive quad layer plating process, double ball locking mechanism, stainless steel locking balls, solid steel cover plate and hardened steel shackle provide maximum security and resistance to environmental elements. A rekeyable and changeable six pin brass cylinder makes servicing and key changes easy, but durable.



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### **National Cabinet's Rekeyable Locks**

National Cabinet Lock has a line of easily rekeyable pin tumbler box locks for doors and drawers. These deadbolt, surface-mount locks use a 7/8" hole and are available in a range of cylinder lengths.



The box locks are designed with the National Cabinet Lock "Advantage Plus" rekeying feature. A 5/16" Allen wrench is all that is needed to remove the cylinder and plug for rekeying.

The key is removable in either the locked or unlocked position. Keying uses the D4291 blank, with masterkeying to GM1.

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### **The Paktek Tool Pak**

The Tool Pak is a backpack tool organizer that secures over 100 of your most needed and important tools, charts and meters. By increasing the zipper size, Paktek has made tool access even easier.



Made of durable, abrasion and puncture resistant nylon, the Tool Pak hauls like a backpack, opens like a zippered file cabinet, and carries like a bag while unzipped, protecting tools as well as surfaces. Tool Pak keeps the worker and tools together, organizing both saving time and money making them perfect for any locksmith.

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### **Automatic Gate's Solar Powered Unit**

Automatic Gate Supply Company has just introduced their unique AGS-900s Solar Powered Gate Operator.

This new sliding gate operator can be operated by either running low voltage (12 Volt) wire for power or with the use of a solar panel.

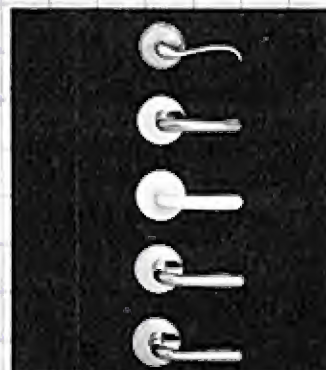


Standard features of this new operator include adjustable obstruction sensing, electronic braking system, it's self-locking in both the open and closed position, soft start and soft stop protection for mechanical parts, and an emergency manual release.

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### **Valli & Valli Levers**

Valli & Valli USA has announced the introduction of Ecostile, a new line of economically priced lever sets. Offered in three unique styles and finishes, Ecostile is now available at door and hardware dealers nationwide.



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Test Article #37

# GENERAL SECURITY

To be tested in  
March '94 issue  
Details in front of issue

## UNDERSTANDING THE ROTATING CONSTANT

by Giles Kalvelage

*"This is part of our security Certificate Program.  
In an upcoming issue, the content will be tested."*

In the United States, we have become very used to Total Position Progression when taking on the challenge of a masterkeying project. This method, of course, requires that after a top master key (TMK) is chosen, no change key will possess any of the same cuts in any of the same positions as the TMK. Any key that does hold the same cut at the

The extra "surprise" operating keys are known as incidental master keys. Obviously, a cylinder which allows 32 keys to operate it is easier to pick or have a random key generated from an outside source (such as a factory keyed lockset from off the shelf) than a cylinder which allows operation by only one or two specific keys. (Note: a six pin lock, masterkeyed with Total

Unlike Total Position Progression, the Rotating Constant method requires change keys (the lowest level key) to have at least one biting in the same position shared with the TMK. The number of chambers in each cylinder that is progressed will remain constant, however, the specific chambers progressed will change.

47312	87312	43312	83312	47512	87512	43512	83512
47332	87332	43332	83332	47532	87532	43532	83532
47316	87316	43316	83316	47516	87516	43516	83516
47336	87336	43336	83336	47536	87536	43536	83536

Illustration 1. List of keys which would operate a cylinder masterkeyed to accept the combinations of 47312 and 83536.

same position as the TMK is a lower level master key and referred to as an incidental master key. This method works well for large masterkey systems. A locksmith with the proper training and experience can easily spot incidental master keys in a system he is expanding or modifying, allowing him to better scrutinize a key before using it in the system.

The downside of masterkeying as a whole, is that it weakens the ultimate security of a lock cylinder by allowing more than one key to work in that cylinder. Consider this, a five pin cylinder keyed to the bitting 47312 will operate only by the key cut to 47312. If it is picked or raked, all of the bottom pins must be manipulated to those exact positions.

Should it be required to masterkey this cylinder, and if Total Position Progression is used, and if the cuts chosen for the second operating key are 83536, there are a total of 32 operating keys for that cylinder! (See illustration 1.)

Position Progression would have 64 operating keys.)

To determine how many operating keys are found in a cylinder, multiply the number of different bittings found in each position times each sequential position. (See illustration 2.) If only two keys were to operate the above cylinder, it might be wiser to design the second operating key to be 47318. Then only two operating keys would operate this cylinder.

Does this mean that masterkeying, inherently less secure, should be abandoned completely? Not at all! But it does require the proper planning of a masterkey system to effectively balance security and convenience.

In Europe, the Rotating Constant method is widely used in the development of masterkey systems. This method, not unknown in the United States, is becoming increasingly popular, especially among locksmiths who field develop their own masterkey systems.



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**CYLINDER 1:**

Key bitting A: 4 7 3 1 2

2 2 2 2 2

Number of bitting depths per position  
in one cylinder

Key bitting B: 8 3 5 3 6

2X2X2X2X2 = 32 operating keys

**CYLINDER 2:**

Key bitting A: 4 7 3 1 2

1 1 1 1 2

Number of bitting depths per position  
in one cylinder

Key bitting C: 4 7 3 1 8

1X1X1X1X2 = 2 operating keys

Illustration 2. To find the number of operating keys in any given cylinder, check each position or chamber. For every depth found in a chamber, multiply it to the number of depths found in the next position, then the next position. Continue until all positions have been counted and multiplied.

TMK =	47312	47312	47312	47312	47312
CK	07312	49312	47112	47332	47310
	27312	41312	47512	47352	47314
	67312	43312	47712	47372	47316
	87312	45312	47912	47392	47318

Illustration 3

TMK=	47312	47312	47312	47312	47312
CK	01312	07112	07332	07314	41112
	21312	27112	27332	27314	43112
	61312	67112	67332	67314	45112
	81312	87112	87332	87314	49112
	03312	07512	07352	07316	41512
	23312	27512	27352	27316	43512
	63312	67512	67352	67316	45512
	83312	87512	87352	87316	49512
	05312	07712	07372	07316	41712
	25312	27712	27372	27316	43712
	65312	67712	67372	67316	45712
	85312	87712	87372	87316	49712
	09312	07912	07392	07316	41912
	29312	27912	27392	27316	43912
	69312	67912	67392	67316	45912
	89312	87912	87392	87316	49912
TMK=	47312	47312	47312	47312	47312
CK	41332	41310	47132	47110	47330
	43332	43310	47532	47510	47350
	45332	45310	47732	47710	47370
	49332	49310	47932	47910	47390
	41352	41314	47152	47114	47334
	43352	43314	47552	47514	47354
	45352	45314	47752	47714	47374
	49352	49314	47952	47914	47394
	41372	41316	47172	47116	47336
	43372	43316	47572	47516	47356
	45372	45316	47772	47716	47376
	49372	49316	47972	47916	47396
	41392	41318	47192	47118	47338
	43392	43318	47592	47518	47358
	45392	45318	47792	47718	47378
	49392	49318	47992	47918	47398

Illustration 4

In lock systems where the standard manufacturer's specifications for each increment is less than .023" (i.e. Arrow, Best, Schlage and others) we will use a two-step system for illustration. This means that for any given position, depths 1, 3, 5, 7, 9 or 0, 2, 4, 6, 8 will be considered for any given cut in a single position. All positions will either use even or odd depths, but they will not be combined. Maximum Adjacent Cut Specifications (MACS) must also be considered in the field, however, for our purposes, all theoretical possibilities will be included.

In our example (see illustration 3), the TMK is 47312. This bitting will be combined into each cylinder. Of course, this assumes a five pin cylinder is being used and all hardware is of the same or compatible manufacturer.

When developing any system, the locksmith must first determine how many change keys will be required to operate the system, and leave room for expansion and expected future rekeying. Usually 50 percent expansion is acceptable, but if working on a small system, it may be desirable to allow for 100 percent expansion.

Should a small unit or building be masterkeyed, where only ten different change keys are needed, it is possible to progress only one chamber at a time. Each pinned cylinder allows for two operating keys, allowing up to 20 different change keys to be operated by a single master key. Let's see what that would look like:

The positions in the TMK that are underlined are the positions that are being progressed to form the change keys below. In a five pin cylinder, this produces 20 theoretical change keys. (Using a six pin cylinder will provide 24 theoretical change keys with one chamber progressed.) Please note that all change keys possess four cuts common to the TMK, but because the position of the progressed cuts change, no change key operates as a masterkey. As only one chamber is progressed in the cylinder, only two keys operate any of these cylinders, the TMK and the change key.

If more than 20 keys are needed,



progress two positions. (See illustration 4.) This yields 160 theoretical change keys. Again, please note the underlined positions in the TMK, these are the positions being progressed. In each series, two positions must be progressed. Each cylinder is operated by four operating keys: one change key, one TMK and two incidental master keys.

A five pin system, progressing three rotating positions provides a maximum of 640 change keys, each cylinder with eight operating keys (one TMK, one change key, and six incidental master). Progressing four rotating positions provides a maximum of 1280 change keys, each cylinder with 16 operating keys (one TMK, one change key and 14 incidental master).

If the Rotating Constant method is used for a six pin cylinder, the following number of theoretical change key combinations are produced:

- Progressing 1 position: 24
- Progressing 2 positions: 240
- Progressing 3 positions: 4320
- Progressing 4 positions: 3840
- Progressing 5 positions: 6144

Notice that the Total Position Progression method, where all six chambers are progressed, only yields 4096 theoretical change key combinations. A five pin system with Total Position Progression yields only 1024 theoretical change key combinations. In essence, it is possible to create a larger masterkey system using the Rotating Constant method than the Total Position Progression method. But where do these extra combinations come from?

In Total Position Progression, there will never be a bitting in the change key combination the same as in the TMK combination. Because Rotating Constant uses at least one of the TMK bittings in each of its change keys, the system gains another usable depth to work with in producing the system.

In producing both systems, a manufacturer is selected. Let us again assume a manufacturer which allows

for depths 0 to 9 and two-step progression. Again, because of these restrictions, only even or odd cuts can be used in a specific position. That means there are five options for bitting depths between both master keys and change keys (0, 2, 4, 6, 8 or 1, 3, 5, 7, 9). In a five pin system, of either method of masterkeying, that is a total of  $5 \times 5 \times 5 \times 5 \times 5 = 3125$  potential operating keys. With Total Position Progression, a TMK is chosen and any depths found in the TMK may not be used in change keys. Thus, to find how many change keys are available with the Total Position Progression method, using a 5 pin system, we multiply the number of positions time the number of available depths, which is four.  $4 \times 4 \times 4 \times 4 \times 4 = 1024$  change keys. Subtract 1024 from the total number of operating keys, 3125, and the number of master keys, planned and incidental, are found, 2101. Note that is more than two master keys for each change key.

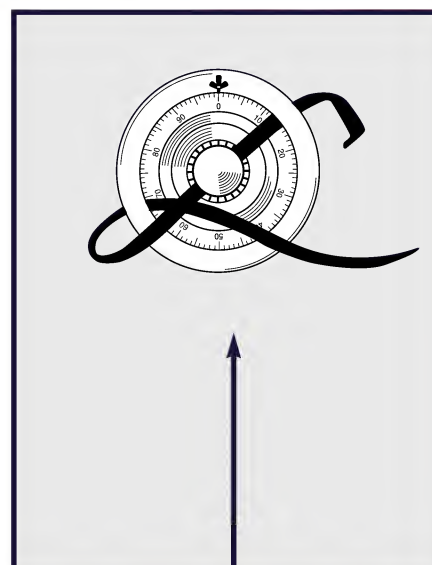
In determining the number of available change keys using the Rotating Constant, the figure is not as easily arrived. Although the total number of potential operating keys within the system is derived in the same manner, and totals 3125, the field of potential operating keys is significantly reduced depending on how many positions are progressed within the Rotating Constant.

The maximum number of changes in a five pin system would require fully progressing four positions of the TMK, requiring five different rotation combinations. Where the "C" appears, the TMK bitting will appear in that position.

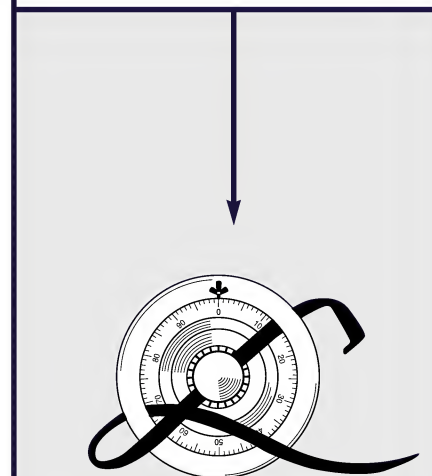
Progression positions:

- 1234C
- 12C35
- 124C5
- 1C345
- C2345

Rotating the bittings in each of these positions yields four pages each of 64 change key combinations in a format similar to the traditional Total Position Progression method. However, instead of the traditional 16



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pages of bitting lists, there are 20 pages of bittings, five groups of four. If a complete 16 page chart of Total Position Progression is created, not one of the change key bittings on those 16 pages will appear as a change key on the 20 pages of Rotating Constant bittings. However, all of the change key bittings of the Rotating Constant method will appear somewhere, either as a listed or as an incidental master key in the Total Position Progression masterkey chart.

Progressing four positions in a five pin Rotating Constant masterkey system produces the possibility of 3125 theoretical operating keys, 1280 theoretical change keys, and 1845 planned and incidental master keys. It should be noted that each cylinder will only contain 16 operating keys, compared to 32 with Total Position Progression cylinders. Also, for every change key produced, there is only 1-1/2 master keys produced under the Rotating Constant method.

When producing a Rotating Constant system, as with all masterkey systems, record keeping is of utmost importance. It is highly recommended that a file be kept for each masterkey system. One of the very nice options of the Rotating Constant method is the ability to easily "peel off" as much of the system as is now needed and if expansion is required, expand later. To do this properly, however, the original plan should be preserved. Again, it cannot be emphasized enough, always progress the same number of chambers in each expansion.

The following charts will help in the progression of Rotating Constant masterkey charts. (See illustrations 5 and 6.) The "C" represents which bitting position of the TMK remains constant. Where numbers exist, those positions will be progressed. For example, if one position is to be rotated, and four positions remain constant in a five pin cylinder system, follow illustration five under "Rotating One Position". The first line under Rotating One Position is 1CCCC. This means only the first position is progressed, positions 2, 3, 4, 5 will contain the TMK bitting. If this is followed properly, a column of four bittings arranged similarly to the first

	Rotating 1 Position	Rotating 2 Position	Rotating 3 Position	Rotating 4 Position
	1CCCC	12CCC	123CC	1234C
	C2CCC	1C3CC	12C4C	123C5
	CC3CC	1CC4C	12CC5	12C45
	CCC4C	1CCC5	1C34C	1C345
	CCCC5	C23CC	1C3C5	C2345
		C2C4C	1CC45	
		C2CC5	C234C	
		CC34C	C23C5	
		CC3C5	C2C45	
		CCC45	CC345	
Yields:				
Theoretical				
Change Keys:	20	160	640	1280
Operating				
Keys/cyl:	2	4	8	16

Illustration 5. Position progression sequences 5 pin cylinders.

	Rotating 1 Position	Rotating 2 Position	Rotating 3 Position	Rotating 4 Position	Rotating 5 Position
	1CCCCC	12CCCC	123CCC	1234CC	12345C
	C2CCCC	1C3CCC	12C4CC	123C5C	1234C6
	CC3CCC	1CC4CC	12CC5C	123CC6	123C56
	CCC4CC	1CCC5C	12CC6C	12C45C	12C456
	CCCC5C	1CCCC6	1C34CC	12C4C6	1C3456
	CCCCC6	C23CCC	1C3C5C	12CC56	C23456
		C2C4CC	1C3CC6	1C345C	
		C2CC5C	1CC45C	1C34C6	
		C2CCC6	1CC4C6	1C3C56	
		CC34CC	1CC56C	1CC456	
		CC3C5C	C234CC	C2345C	
		CC3CC6	C23C5C	C234C6	
		CCC45C	C23CC6	C23C56	
		CCC4C6	C2C45C	C2C456	
		CCCC56	C2C4C6	CC3456	
			C2CC56		
			CC345C		
			CC34C6		
			CC3C56		
			CCC456		
Yields:					
Theoretical					
Change					
Keys:	24	240	4320	3840	6144
Operating					
Keys/cyl:	2	4	8	16	32

Illustration 6. Progression positions sequences 6 pin cylinders.

column of numbers of illustration three will be created. To expand the system, go to the second line under "Rotating One Position", which is C2CCC. Again, this directs positions 1, 3, 4, 5 to assume the bittings of the TMK, while position 2 is progressed. If this is followed properly, a second column of four bittings will be created similar to the second column of bittings in illustration three. Continue until there are adequate change keys for the systems' use, or until all positions have been progressed.

If two positions are to be progressed, follow the example of illustration five, "Rotating Two Positions." The first line is 12CCC.

meaning positions 1 and 2 will be progressed, while 3, 4, and 5 will retain the TMK bitting. If followed correctly, a column of 16 bittings will be produced similar to the first column of 16 change key bittings in illustration four. Progressing the system through the remaining nine lines and nine more columns of 16 change key bittings are produced.

As more positions are progressed, the masterkey system will greatly enlarge. Each line of the "Rotating Three Position" in illustrations five and six, yields four columns of 16 bittings, for 64 change key bittings. There are ten lines to be progressed with the five pin cylinder and 20 lines



to be progressed under the six pin cylinder version. It can easily be seen that these systems can become quite large. That is the reason the entire progression chart is not printed in this magazine article.

In a Total Position Progression system, if a 64 page progression list is created, block masters, line masters, vertical and horizontal group masters can be found easily on each page. Some advanced masterkey professionals can also easily find incidental "block masters" for the first combination which appears on pages 1, 2, 3, and 4, the "group master" for the first combination which appears on pages 1 through 16 and so on. With the Rotating Constant method, this is a dangerous task. Lower level master keys can be found on Rotating Constant systems. Progressing two positions will yield block master keys, progressing three positions will yield block and line master keys, vertical and horizontal group master keys. Progressing four positions will yield the above, plus a four page master key.

UNFORTUNATELY, THESE LOWER LEVEL MASTER KEYS ALSO OPERATE CHANGE KEYS IN "UNEXPECTED" POSITIONS!

Please go back to illustration four. The first block in the first column of bittings would be operated by the block master 41312. If it isn't expected, it's a surprise to find that it also operate locks combined to the first change key in each block of the fifth column, (41112, 41512, 41712, 41912); sixth column (41332, 41352J 41372, 41392), and seventh column (41310, 41314, 41316, 41318). Although this can be an advantage, it can become a nightmare if not properly prepared for.

The Rotating Constant method of masterkeying is easy to use, has great flexibility and offers tighter security for two level (simple) masterkey systems. Producing higher level masterkey systems still offers tighter security - but the systems need to be thoroughly scrutinized when using incidental master keys. Failing to do so can result in the reduction of security and an inevitable nightmare caused by incidental master keys.



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Test Article #38

# AUTOMOTIVE SECURITY

To be tested in  
March '94 issue  
Details in front of issue

## CAR OPENING, PART I

*"This is part of our security Certificate Program.  
In an upcoming issue, the content will be tested."*

Auto opening has always been an intriguing skill, for both the victim of the lock out as well as the one opening the vehicle. From tow truck drivers, policemen and neighbors with flat bars and coat hangers, to the professional locksmith with an assortment of tricks up his sleeve, the adrenaline (and sometimes money) runs high when a car door is opened without the use of the correct key.

The need for professional locksmiths to open locked vehicles is more critical than ever. Manufacturers are making easy access with coat hangers and simple flat tools a thing of the past. The likelihood of damage to a vehicle caused by untrained personnel runs high. The end cost and liability of damaging a car during opening runs even higher.

However, even with today's, as well as tomorrow's, auto lockout challenges facing us, there should never be a need to fear or failure to service an auto lockout.

If you have a pen, write this down; highlight it if you have a highlighter; however you do it, remember - A car does not exist where the locking system cannot be circumvented. The trick is to understand a few basic auto entry principles, and to match these principles to the car being opened.

"Attack the lock not the safe."

That is the advice Dale Libby gives when asked how to open a particular safe.

This sage advice applies to autos also. There are only a few basic methods that can be used to open any car. The only difference from one vehicle to the next is how the method or technique is varied to accomplish the opening.

We could stop here and say, "Auto opening is that simple." However, it's not. Like picking locks, impressioning, or manipulating a safe, opening autos is a skill based on knowledge and experience. A competent locksmith has plenty of both. An inexperienced locksmith needs to collect both. Let competency be your goal.

### Guidelines

Before we start let's lay down a few ground rules for auto opening. These guidelines are designed to protect you and your business from unscrupulous customers who may want to take advantage of you and your skills.

**1. Before going out, collect as much information about the customer as possible.** Include name and home address as well as home phone number. Get the return phone number of their current location. Set price and define terms for payment. Inform customers that proper forms will be needed to confirm both their identification and vehicle ownership. If they are using a credit card for payment, get a pre-authorization before leaving for the job.

**2. Be aware of the circumstances.** Taking for granted that every service call is going to be a "typical service call" can put the locksmith into some compromising and sometimes dangerous situations. Evaluate every call with care.

Be concerned about the time of day, the location, and the condition of the customer. Keep a mind's eye open for possible domestic problems, intoxicated customer, or other signs that may mean trouble. Working in the wrong place at the wrong time is your responsibility.

While the police are not paid to be

bodyguards, if you are concerned or unfamiliar with a particular location, they can often offer advice, and are alerted to your presence at a given location.

If you are uncomfortable with the situation for any reason, turn down the work!

### 3. Collect information on the vehicle you are to open.

Preparedness exhibits professionalism. Knowing the make, model and year are critical indicators of the available opening methods. Books and manuals abound on opening methods for specific vehicles. Use them!

Having some idea as to how you are going to approach the vehicle before you get to the site makes the job easier. And nothing creates an image of professionalism better than a locksmith who can grab the correct equipment and tools and open a vehicle without delay. At the same time, nothing destroys this image more than a locksmith fumbling through manuals and tool cases while mumbling makeshift excuses about the difficulty of that particular car opening.

**4. Practice!** Would you trust a doctor who never served an internship or worked on a cadaver? Probably not. Likewise, there is no need to let your customer be a victim of shoddy, inexperienced locksmithing. Your customer's car is not the school in which to learn, nor the gymnasium in which to practice.

Find a local auto dealership or salvage yard that will allow you to study and practice on the vehicles with which you are unfamiliar. Practice more than once using a variety of tools and methods.



**5. Like the water as you learn to swim, opening autos should be respected but not feared.**

There is always the element of the unknown and the case of the unexpected. These elements must be accepted as part of the job. Treat each job individually and without prejudice as to its simplicity or complexity.

**6. Finally, never quit!** If all else fails, pass the job to another locksmith and watch. But, never quit!

## Tools

Locksmiths typically fall into one of two categories with respect to the purchase of tools. Either they purchase a few or they buy a great many. If given a choice, the latter is preferred, provided the tools are kept organized.

If you are just beginning your adventure into car opening, your stock of tools may be scarce. Not making the job any easier is the significant number of companies making available copious amounts of tools, manuals, information, etc. More often than not, the challenge of choosing tools and equipment is more intimidating than opening even the most exotic vehicle.

So, what is really needed? Obviously the tools chosen will reflect your strength at any given method. But there are some basic tools that can be purchased.

**Picks** - If you don't have them now, get them. Many vehicles can be easily picked open.

**Key cutting equipment** - Often the vehicle's keys can be seen and sight read. But if you don't have the correct key cutting equipment, this method is not open to you. Buy equipment that allows you to cut keys on the road.

**Code books and service/opening manuals** - Knowing ahead of time what to expect means information is necessary. The frustrating point here is that no manual is 100 percent correct. Discrepancies among different companies' manuals is common, and the reason for practicing opening vehicles on your own.

There are a variety of manuals published for the locksmith to make auto opening easier. The best advice is to look them over and choose the style you prefer because most all of them contain a great deal of useful information. Software and HPC 1200 CM code cards also will help you. (See photograph 1.)

**Door wedges** - The door wedge is used to separate the window from the surrounding weather strip and trim. The extra space provided by the wedge allows car opening tools and

batteries often had short life spans.

Today lights utilizing better materials and technology offer more light, a more durable bulb and wand, and battery packs or vehicle plug-ins for long battery life. (See photograph 2.)

**Opening tools** - Locksmiths probably spend more money on opening tools than any other piece of equipment. By understanding the basic techniques to be presented in future articles, you may find a need for a variety. Making slight bends to



1. Knowing just what to expect before you get to the job can only be accomplished with a well rounded reference library. Auto opening manuals are a good start and are available from several companies. An auto encyclopedia such as Treskat's Automaster for computer, or Baxter's Foreign Car Information Book offer excellent information on codes, keyblanks, code locations, and auto opening methods. Other reference materials such as code cards for the HPC 1200 CM and keyblank cross-reference guides by Silca and Iico offer a wealth of information on the locks, codes and keys used by various vehicles.

lights to slide easily within the door without damaging the door's weatherstrip or molding. Like manuals there are several sizes, shapes and designs from which to choose. In this case, even the least expensive one can sometimes be as advantageous as the most expensive.

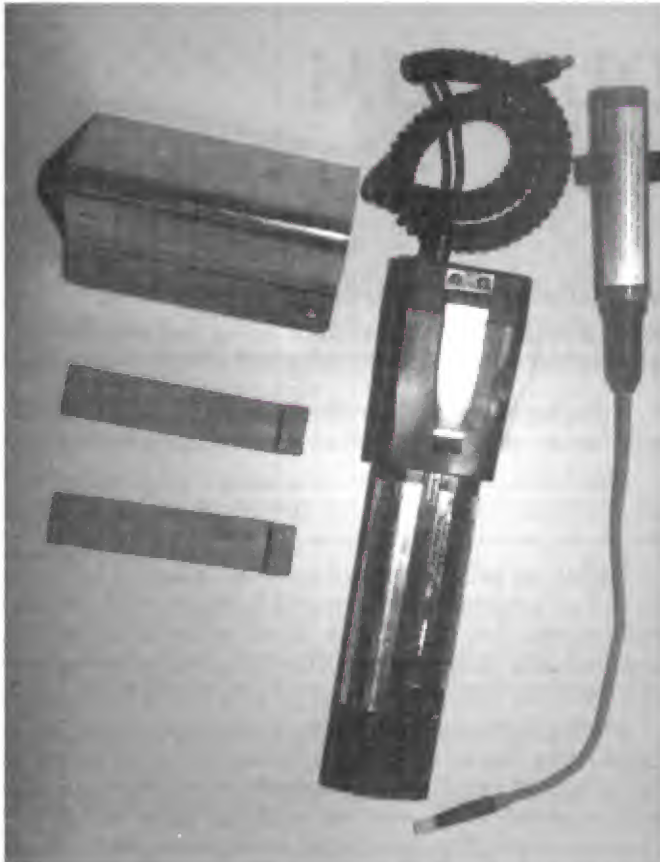
**Lights** - Over the last 10 years advancements in lighting products have made opening vehicles significantly easier. Earlier lights typically used two or three AA sized batteries and standard miniature light bulbs. While great at the time, the light emitted from these units was poor by today's standards, the bulbs and wands were very delicate, and the

existing tools also often accomplishes the desired results. Many locksmiths carry lengths of steel rod and bend their own tools for special occasions.

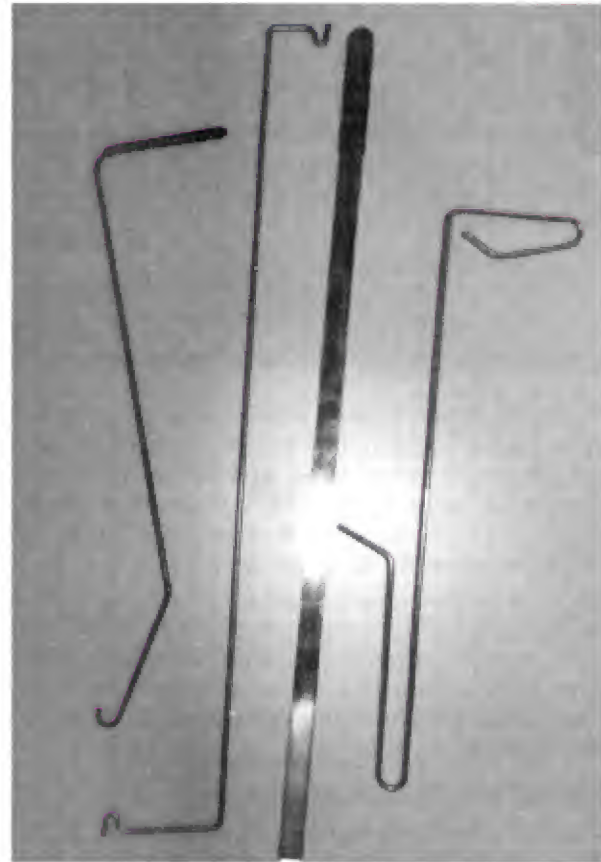
When you are going to purchase tools, especially the larger, continuously updated kits, first check to see if they have a customer support and help line available. Make sure the accompanying directions and illustrations are clear and concise. Ask the manufacturer about satisfaction and return guarantees. Nobody wants to be stuck with tools they cannot use. (See photograph 3.)


Next month we'll cover the components of an auto locking system.





2. Lights and wedges are almost a necessity for auto opening today.



3. These are just a few of the hundreds of various opening tools available. 

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Test Article #39

## ELECTRONIC SECURITY

To be tested in  
March '94 issue  
Details in front of issue

# THE VOLT-OHM METER

by Jeff Scott

*"This is part of our security Certificate Program.  
In an upcoming issue, the content will be tested."*

**E**lectronic Access Control (EAC), is an installed system that requires different levels of voltage and current. While not overly complicated, installation necessitates a working knowledge of some basic tools. This article will introduce you to the use of a Volt-Ohm Meter (VOM), one of the basic tools used for electronic security.

Because of their multiple uses - measuring a circuit's resistance, AC (alternating current) and/or DC (direct current) voltage, current, and circuit continuity, volt-ohm meters, often referred to as multimeters, are an indispensable tool for site evaluation, installation, and trouble shooting.

## Digital vs. Analog

There are two basic styles or types of VOM; the digital and the analog. The digital, becoming ever more popular, incorporates a digital readout of the measurement being taken. The analog, on the other hand, uses a dial and scale configuration for displaying measurements.

The large meter face of an analog meter (see photograph 1) contains several numbered scales, as well as a long needle which indicates a level of either voltage or resistance. One advantage an analog has over its digital counterpart is that variances in the signal being applied or rapid changes are more easily interpreted as the needle travels between "0" and maximum deflection (or the end of the scale).

Fear not; many DMM manufacturers incorporate a fast-responding bar graph indicator in the LCD display of all but the least expensive models.



1. The analog VOM uses a dial and scale method to display the measurements being taken.



2. The digital VOM or DMM uses an LCD digital display to display measurements.

A disadvantage in the operation of an analog meter is that the approximate value of what is being measured must be known.

This is because the appropriate range must be dialed-in to prevent maximum deflection (peaking) of the indicator needle that would damage the meter movement.

DMMs are being employed more and more by hobbyists as well as professionals. Compared to other voltmeters and multimeters, they offer better speed, accuracy, resolution, and automatic range readout. These advantages are additive and result in a reduction of operator fatigue and error.

During a recent news documentary about the Super-Conducting, Super Collider of Texas aired before Clinton and Congress cast their votes against technology research, a white-coated engineer was taking final electrical measurements of an accelerator section controller. To my surprise, he held in his hand the same model DMM I have been carrying since 1979! That is a true testimonial to the quality and technology packed into today's DMMs.

Operating a DMM is exceptionally simple. Choose the function you want, connect the test leads, and the meter automatically selects the best range. The dollar spread between the least expensive (\$39) versus the medium priced meter (\$139) is reflected in the accuracy and resolution of the LCD display. Other differences worth consideration are internally fused settings with replaceable fuses, an auto-off function to save the battery when left on, last or highest measurement memory, and an audible continuity tester, which is signified by a beep.

Now, let's put your meter to use.

As an EAC technician, you will be required to measure VOLTAGE, RESISTANCE, and CURRENT.

**WARNING! - VOLTAGES AND CURRENT IN EXCESS OF 0.01 AMPS CAN CAUSE SERIOUS INJURY OR DEATH. ALWAYS USE EXTREME CAUTION WHEN WORKING WITH POWERED CIRCUITS.**

Voltage measurements are taken across (in parallel with) the load. This load may be represented as a door strike, magnetic lock or a plug-in wall transformer.

1) Switch the DMM selector to the appropriate setting. ("AC" for measuring wall outlets, plug-in transformers, etc. "DC" for checking batteries or measuring the output powering a magnetic lock.)

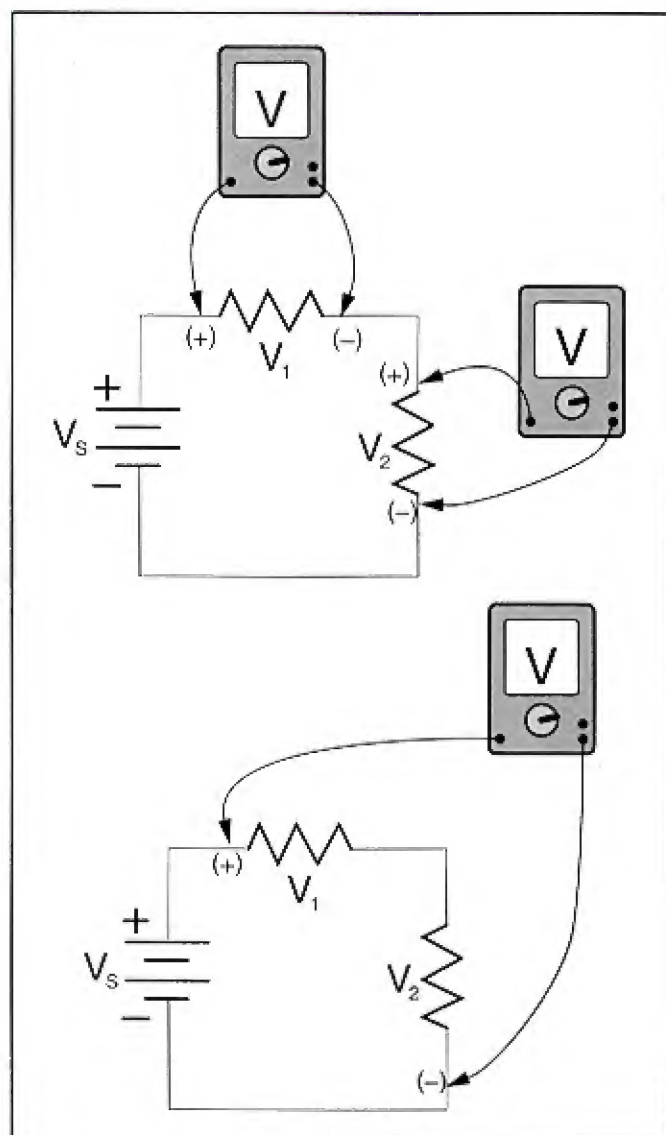
2) If using an analog meter, or if the DMM does not feature auto-ranging, select the most appropriate range for the voltage anticipated.

3) Place the meter probes on the corresponding positive and negative circuit points.

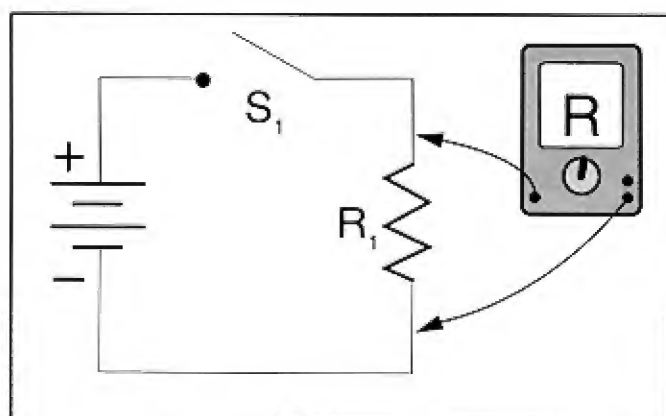
*Continued on page 26*



Continued from page 24



3. The voltage measurement is taken by placing the contacts of the meter on either side of the equipment being measured. For example, in the upper illustration, the voltages for V1 and V2 are being measured separately. To determine the voltage of the entire circuit either add the voltages of V1 and V2 together, or, see lower illustration, take a reading that includes both V1 and V2.



4. The resistance measurement is taken by first removing power from the circuit and then placing the contacts of the meter on either side of the equipment being measured.

4) Read the value as displayed.

(See illustration 3.)

Any part of a circuit can be measured for resistance. The power **MUST** be removed before taking a resistance reading, as you will damage the meter if you attempt a resistance reading on a live circuit!

1) Remove the circuit power source.

2) If using an analog meter, or if the DMM does not feature auto-ranging, set VOM to the lowest range.

3) Place the probes across the electrical points representing the load in question.

4) Read the value.

FOR ANALOG USERS ONLY: If the needle displacement does not fall midrange in the scale (the most accurate area of deflection), adjust the range selector to make it so.

(See illustration 4.)

Current, which may be compared to water flowing within a pipe, must be measured by placing the meter directly in the path (in series) of the flow of electrons (much the same way that a flow meter measures water flowing through a point in the pipe. Circuit power is then disconnected. Probes are arranged so that the meter becomes a part of the circuit; in the negative probe (placed on the most negative point of the circuit being measured), out the positive probe and on to the rest of the circuit. In essence, taking a current reading requires power flowing through the circuit.

1) Remove power from the circuit by disconnecting the power source.

2) Select the correct setting for current, AC or DC. For most DMMs, this will also mean unplugging the positive probe from its usual jack on the meter and inserting it into a special jack intended for this purpose.

3) Open the circuit path through which you are interested in measuring.

4) Place the meter probes on either side of the opening in the circuit.

5) Re-apply power to the circuit.

6) Read the value.

(See illustration 5.)

## Meter it right!

The following are examples of some common every-day situations in the world of electronic access control that could require the use of a meter.

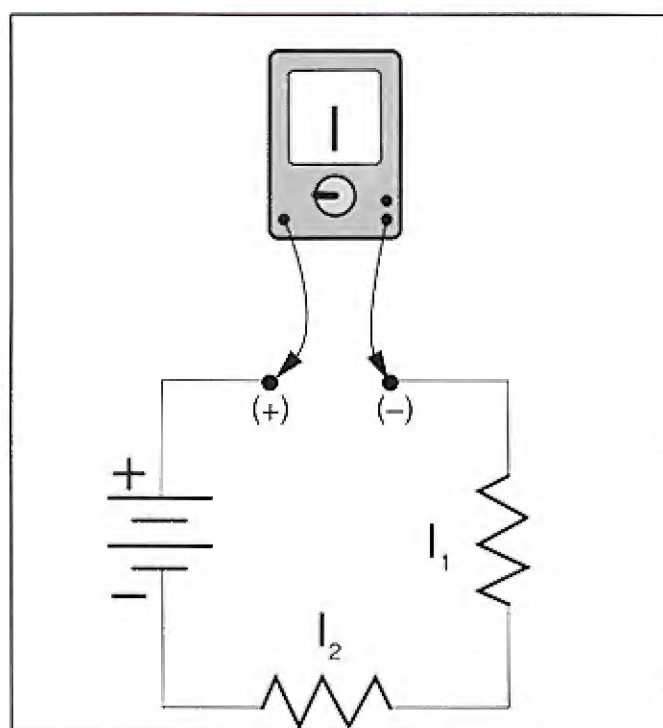
### Checking Back-Up Battery (DC)

Since you're interested in the voltage level of the battery only, be sure to disconnect the battery leads, in order to isolate it from the charging circuit. Select (DC) as the meter setting of choice. Touch the negative (black) probe to the negative terminal and the positive (red) probe to the positive terminal of the battery. Battery voltage will be displayed.

### Verifying Status of Relay Contacts: Open or Closed (CONTINUITY)

This determination can be made by using the "continuity" or "resistance" setting of your VOM. If the relay contacts are closed (shorted from one to the other), the ohmmeter will register "ZERO" resistance. A continuity check of the same will result in an audible beep for as long as contact is made. (If relay is used to switch power, be sure to disconnect before applying meter probes.)





5. To measure current, the meter must be placed in series with the circuit.

#### Measuring Current Used by a Magnetic Lock (CURRENT)


Disconnect power supplying the lock and open the positive leg of the circuit. Select the appropriate setting for both function and range. (Don't forget to change the positive

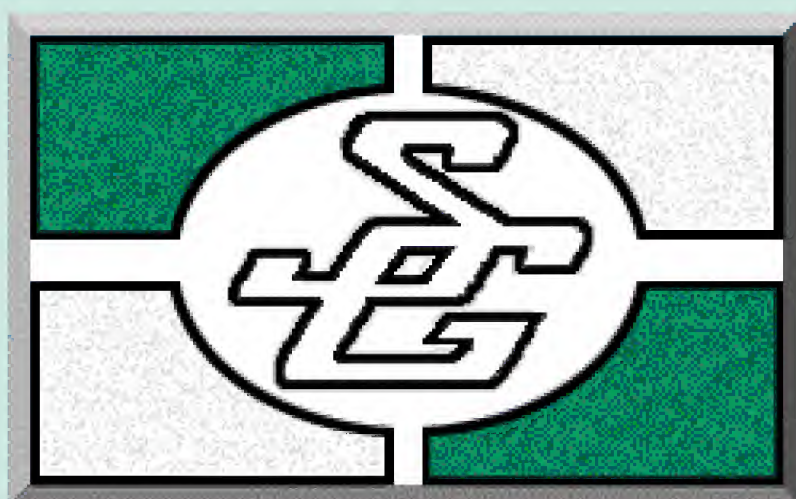
probes jack if your meter is equipped with this feature). Place the positive (red) probe of the meter on the wire coming from the power source. Place the negative (black) probe on the wire going to the lock. (Even though this may result in the negative probe to a "positive" wire, in relation, this wire is the more "negative" of the two). Re-apply power to the circuit and take your reading.

#### Checking Resistance of a Circuit (OHMS)

Most access control panels require an earth ground in order to minimize the effects of voltage surges. For an earth ground to be of use, it should exhibit no more than two ohms of resistance. Many equipment manufacturers approve of using the ground available at an electrical outlet if it provides no more than two ohms resistance. How do you verify this? Find the nearest metallic, cold water pipe or grounding rod. Clamp one end of a heavy gauge (12 gauge or larger) wire to it. The other end of this wire is run to the location of the wall outlet in question. Set your meter to the "Ohms" setting. Keep one probe in contact with the reference (cold water pipe) ground wire and the other with the grounded center screw of the outlet cover. If resistance to ground via the electrical outlet is less than two ohms, it may be used for system grounding requirements.

#### Conclusion

These brief guidelines will enable you to practice and become familiar with multimeters, one of the most versatile and simple tools needed to perform EAC installations. For more information, refer to basic electronics handbooks, as well as instruction books from meter manufacturers. Next month, we will discuss specific examples of how to use meters on a variety of circuits. 



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# BEGINNER'S CORNER

## The Magic Touch

Maybe you have had your car or truck stolen, or your friend, neighbor or relative has had their car stolen. Maybe you have heard of someone else who has had his car stolen.



by Eugene Gentry

The fact is there are thousands of cars that are stolen in this country each year. Cars disappear even when people take precautions with the installation of alarms. The manufactures are coming out with new security features on the newer cars and this is helping.

If someone wants to steal your car, however, he is going to do it no matter what. If it is protected with a steering wheel lock, the steering wheel is cut and the device removed. If it has an alarm, they will disarm it, and if it has a steel collar on the column they will try to crow bar it off.

Some of the alarms are quite sophisticated, like the one in a parking lot that went off when I dropped a heavy wrench near it. The alarm must have had a sound sensor. Another car spoke to me when I touched it. It said, "Stay away from me or I will sound the alarm."

What I am getting at is that the locksmith has a chance to get in on some of this market. The thought came to me that if a thief can not start

your car, then how can he steal it?

This brings us to the Magic Touch Security System, manufactured by Briggs & Stratton, part #702264. (See photograph 1.) This system has a simple design, made up of a relay module, three wires- red, white and a black ground wire- and a switch pad.




1. The Magic Touch vehicle ignition cut-off by Briggs & Stratton.

Installation is made by cutting one wire, the one going from the ignition to the starter solenoid. The red wire goes to the ignition, and the white wire goes to the solenoid. The black wire is attached to a ground. Place the switch pad under the floor mat, or in any concealed place. To start the car press the switch pad with your foot, or hand if mounted under the dash, and the car will start.

Warnings are in the instructions to be sure you have the correct wire, as an incorrect connection will cause damage to the system and to the cars starter wiring.

The advantages of this system are that it will work on any type of electric start vehicle, and it prevents any one from hot wiring the car. There are no horns or sirens to cause trouble if they accidentally go on. Even if the steering column is broken, the car will not start.

The Magic Touch Security System is sold through Briggs & Stratton distributors. 



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## LOCK' EM UP

*"Detention facilities are facing the challenge of training personnel with enough experience to maintain equipment."*

by Frank Simmons

The detention industry is a vast industry covering the federal, state, county and private sectors. Each of these levels are then classified as maximum, medium or minimum security. To better understand these levels of security, let's better understand the equipment that is used to provide the security.

What better way to classify the various detention equipment levels than by the keys that are used to operate the equipment, from maximum to minimum security? For example, the jail or paracentric key is used with equipment that requires a maximum security application. (See illustration 1.) The maximum security areas include cells, corridors, sallyports, holding areas and emergency exits or any other high security areas. This type of lock utilizes a wafer or lever-type tumbler and cannot be masterkeyed.

High security locks are available with several functions:

- Mechanical - (See illustration 2.) This allows a key to be inserted to extend and retract the deadbolt at the door from one side or both sides. These locks are typically

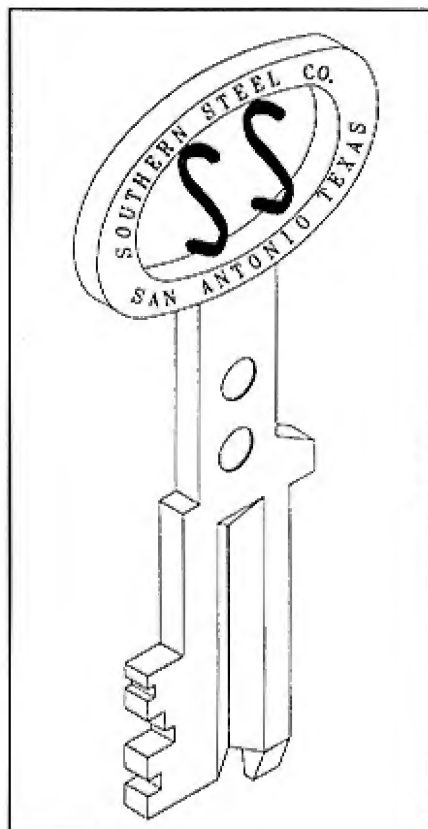


Illustration 1

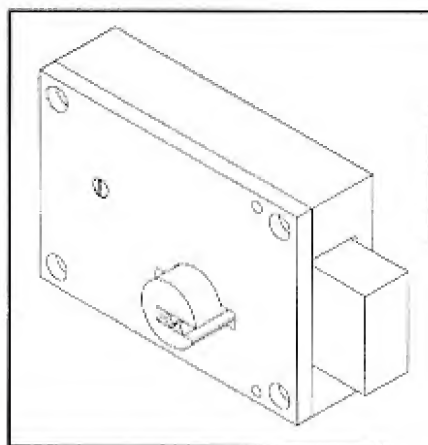


Illustration 2

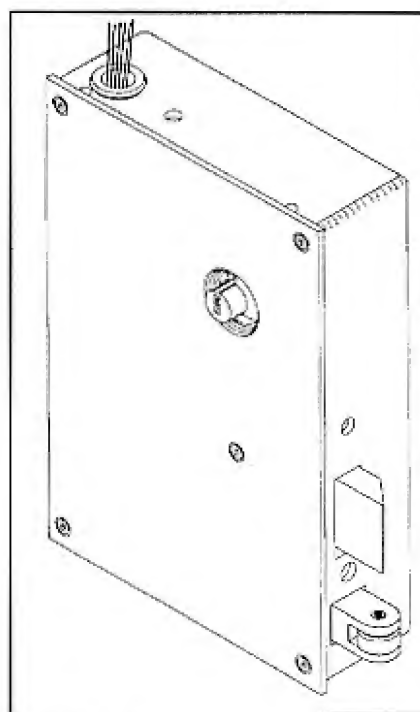


Illustration 3

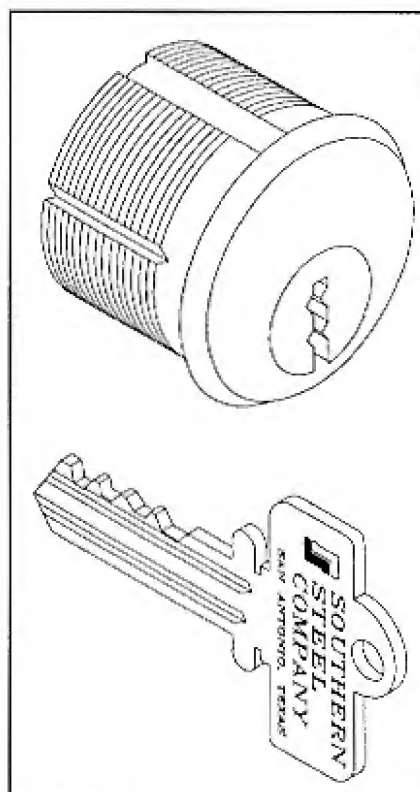


Illustration 4

installed mortise in a 1-3/4" hollow metal door having hardened steel bolts with shear-proof inserts.

- Electro-Mechanical - (See illustration 3.) These locks are operated from a remote control station. This allows the lockbolt to be retracted and extended from an electric console. The monitoring of these doors is very critical because, in most cases, the doors are not visible. Electro-mechanical locks are jamb-mounted. Voltage requirements are 24VDC and 110V AC.

The next classification, medium security, would utilize a mogul cylinder and key (See illustration 4.) The mogul cylinder utilizes stainless steel pin type tumblers. Medium security hardware would be used at cells, corridors, sallyports, administration areas or any low to medium security areas. These locks are also available with manual and electro-mechanical



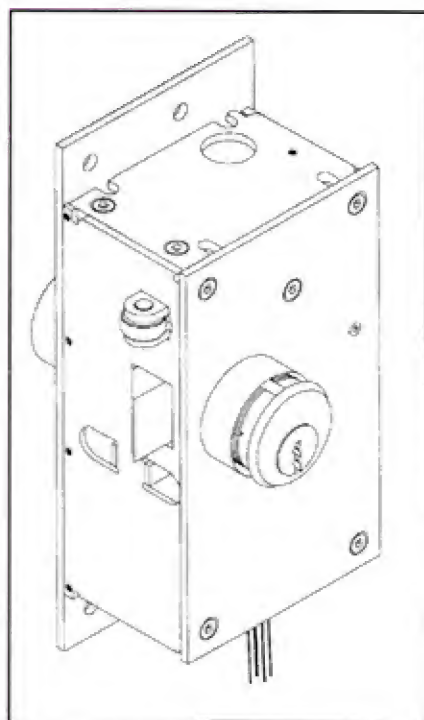


Illustration 5

functions (see illustration 5), allowing lockbolts to be extended and retracted from a remote location using an electric control console. In some cases, the door will automatically deadlock when the door is closed. In other cases, deadlocking is performed by manual key operation. Manual locks are installed mortise in hollow metal doors. Electro-mechanical locks are installed in frame jambs.

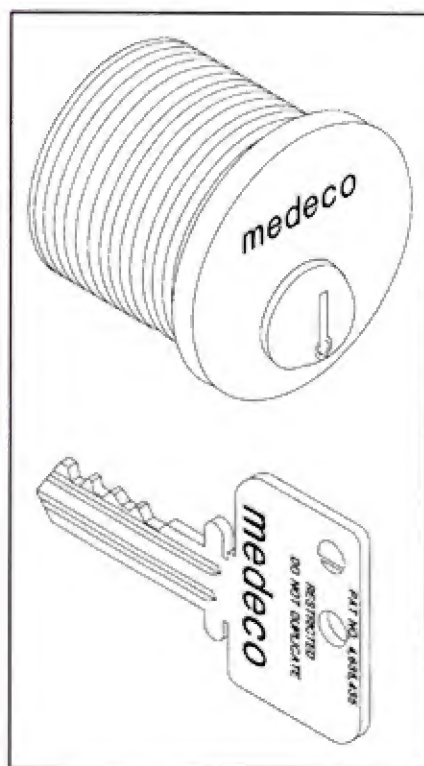


Illustration 6

One significant difference between paracentric keyed locks and mogul keyed locks is that mogul keyed locks can be master keyed. Most moguls offer four levels of keying: Day Key/Pass Key, Master Key, Grand Master Key and Great Grand Master Key. Voltage requirements of mogul keyed locks are 110VAC and low voltage 24VDC.

The final security level of minimum security utilizes the typical key and cylinder security builder hardware type. (See illustration 6.)

Many major building hardware manufacturers offer these high security keys and cylinders. Applications for this type of lock include cells which require direct supervision, administration areas or any low security area. This type of lock is normally installed in a narrow jamb, typically 2" in width, and is available in both solenoid and motor version. The motor version has been specified in medium security application because of its superior sideload capabilities (See

illustration 7.)

Once the level of security has been identified, one of the next challenges would be equipment selection. Some "key" questions to ask in selecting the proper equipment are:

- What type of door is being addressed - sliding or swinging?
- What is the function required - what application?
- Is equipment manually or electro-mechanically operated?
- Is it operated by motor or solenoid?

The process of determining

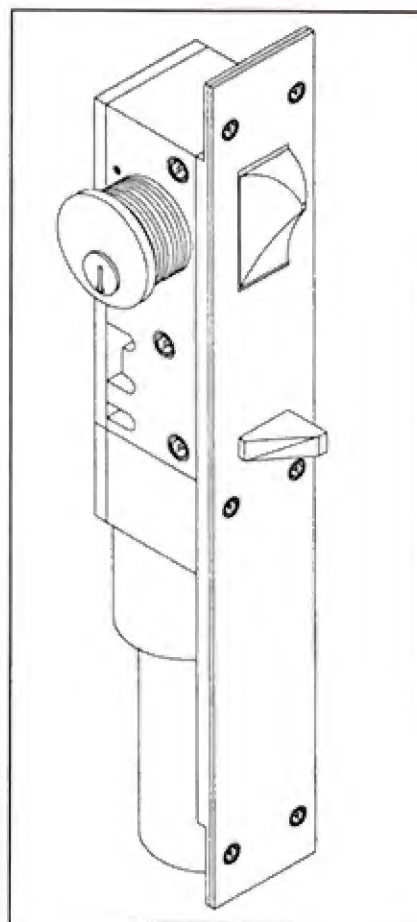


Illustration 7

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specifications for jails and prisons is highly technical and requires years of experience and a general knowledge of prison standards. Such experience plays a vital role in the development of specification and construction. Detention facilities all over the country are facing the challenge of training or contracting personnel with enough experience to maintain equipment from a servicing perspective.

Several companies specialize in the manufacturing of detention equipment. These companies have all realized the detention industry as a specialized "niche" industry. Most of the companies have taken steps to bridge this gap, and to educate those who want to become involved in the detention industry.

Southern Steel Company has addressed this subject by marketing a "ONE-SOURCE" package. This will provide a means for architects, contractors and owners, to contract all of their detention equipment needs from one supplier. This includes locking devices, locks and hardware, detention hollow metal doors and frames, security windows, security glass, and furniture, as well as integrated security electronics, all combined with the capability of installation at the site.

In addition, Southern Steel holds a comprehensive, week long technical training school for those who need to know more about detention equipment. The school is conducted quarterly at the training facility in San Antonio, Texas. For more information, please contact Marvin Krueger at 210-533-1231.

The detention industry is certainly not flooded with technicians waiting around to make service calls. Training, knowledge and experience are key issues. With these skills intact, a person can become an important player in the highly specialized detention industry.

*Frank Simmons is a lock and hardware training instructor for Southern Steel Company. Frank has taught detention hardware classes for ALOA.*



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## SETTING THE MAN TRAP

*"A function of electric strikes in a detention facility is to provide controlled access into a restricted area using two interlocking doors."*

by Michael A. Webb

Heavy duty electric strikes are utilized in a large portion of today's security systems for detention facilities, due to their compatibility with the existing door hardware and their ease of installation. This provides the facility with a means for both keyed and electric access control. Many medium security detention and psychiatric facilities have chosen to use heavy duty electric strikes on the individual confinement rooms for central station monitoring. Although an electric strike may not be an ideal choice for individual cell lock-ups in maximum security jails and prisons, they do present a likely choice for most other types of access control in medium and minimum security areas.

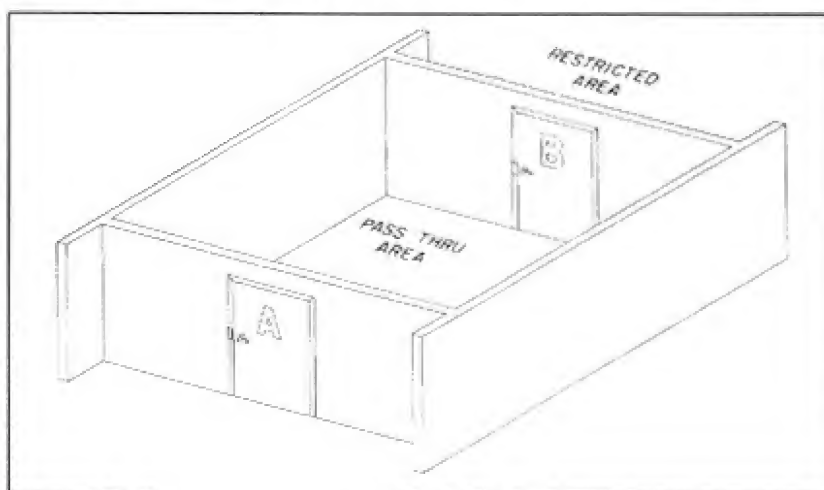


Illustration 1

allows one door to be unlocked and opened by an authorized person and at the same time cut the power to secure the second door. When the first door is closed, the second door is then able to be unlocked and opened which then secures the first door.

There are many options for choosing a door monitor switch for this type of application. These can range from simple jamb mounted door position switches, to magnetic contact switches, to motion detection switches.

One of the many uses for electric strikes in a detention facility is to provide controlled access into a restricted area using two interlocking doors. This type of application is commonly referred to as a "man trap." The two doors in a man trap system are electrically interlocked, so that only one door can be opened at a time. (See illustration 1.) The man trap system can be designed to secure a pass through area from unauthorized persons, trap a person in a pass through area until proper identification is made, or to trap a person in a pass through area to scan for weapons and/or contraband. This can be as simple as having two interlocking doors between adjoining rooms or as complex as two interlocking doors separated by a observation room with CCTV cameras and a security guard. These systems can be very successful at controlling who or what is permitted to enter a restricted area.

In the man trap, the doors are interlocked by utilizing a door monitor switch at each door and connecting the switch to the electric strike power leads of the opposing door. (See illustration 2.) The door monitor switch acts as a power inhibitor to the opposing electric strike. This

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Most heavy duty electric strikes also provide an option to monitor the door, with a switch to detect the latchbolt in the door or a switch to detect the electric strike itself being locked or unlocked. To eliminate the possible tampering of the switches in the electric strikes, many installers choose to combine one of the other door switches with the monitoring switch in the electric strike. (i.e. Mounting a magnetic contact switch in the jamb a few inches below the electric strike and connecting it in series with the electric strike's monitoring switch.) Thus both switch conditions will be acting to secure the opposing door.

Electric strikes are designed for many different purposes, with varying levels of quality and durability. When using an electric strike in a detention facility

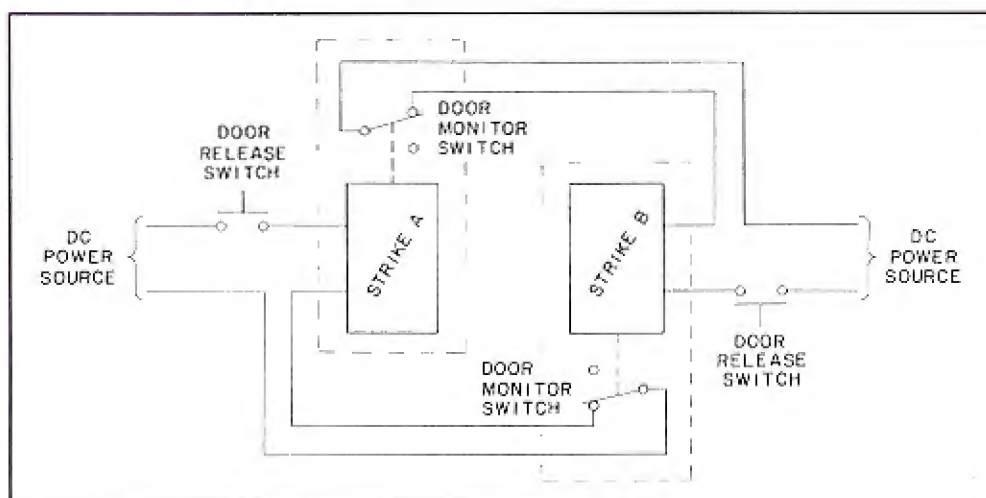


Illustration 2

security system, it is important to use the correct product design. Today's heavy duty electric strike manufacturers have taken these products to the levels of strength and integrity needed for high security access control applications.

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## DIARY OF A JAILSMITH

*"While a typical day may be best portrayed by the 'Maytag Repairman,' there are moments of sheer chaos."*

When I was asked to write this article, I was told to tell a little about the day in the life of a jailsmith. And, quite honestly, a typical day is best portrayed first by the Maytag™ repairman commercials, waiting for the phone to ring, and then by the commercial for Lunchables™ with the secretary running around the office trying to get fifty things done before 10 AM. It is boredom with moments of sheer chaos, but not all of it is terrible conditions, horrible people and dingy spaces. There are humorous (usually after you've looked back on them) situations that happen there also. While reading these, remember they are based on the paranoia of jail security where every device, person and control is geared to protecting the people who work in these places while keeping the offenders locked up.



by  
Rick Segerstrom

The first event takes place not in the jail itself, but in the courthouse directly across the street. For two weeks we worked in this building masterkeying and installing auxiliary locks in offices and security areas. During this time I had forgone wearing my uniform shirt because the color closely resembles the orange jumpsuits that the county prisoners wear.

My company performed the masterkey job before the courts were to be occupied and thus had free access to every room in the building. We had finished the job, and left the premises for about a month while everyone moved in and set up. During this time several more requirements were identified and we were called back to do more work. I had sent another two man crew into the job that morning and had intended to join them later in the day to help finish. I neglected to tell my men about the forbidden orange shirts. No one thought about the shirts or mentioned them to my men during the morning they worked without me. Since the men worked in the mechanical areas of the building most of the day, they weren't seen by many people.

When I arrived, there was a bustle of activity in the courthouse and I went directly to the facilities maintenance office to ask where the others were. No one was there, so being the take charge type of guy that I am, I decided to find them myself. Starting from the top floor, I began to work down thinking they would be almost finished by now.

Getting off the elevator on the sixth floor, I immediately turned right and proceeded to the secured hallway, which is an area that forms a circle around the perimeter of each floor. This area is off limits to all outsiders and can only be entered into by coded card, or pass code. Someone had not

followed security procedures, because the code I had been issued during the masterkeying job still worked.

Another feature of the secured hallway is the design of the walls. Each office connected by the hallway is designed with glass starting about four feet up from the floor. This gives the people in the offices the chance to see who is in the hall and call for assistance if necessary. I was totally naive to believe that I could roam the halls completely unchallenged and not attract some attention and that is exactly what happened.

As I rounded a blind corner in the secure hallway, I was met by three bailiffs, two in the crouched position, and one standing behind them, ALL of them with guns pointing at me!!!

To say that I froze in place would be an understatement. After inhaling about half of the usable air for a five state region, I regained my composure. In that simple second and a half, somehow my hands had involuntarily risen above my head and my surrender voiced with authority. It only took



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moaning sounds, or screams emanating from within the bowels of the long dark hallways leading to who knows what kind of human atrocities...but, instead we found the same dull green colored doors, the same lighted lobby, and two new officers we had worked with on a couple of the other floors, manning the control booth. The first of our fears had been laid to rest, and upon visual inspection of the pods, all of our other fears were dissipated. Big deal, we'd seen this exact same setup on all the floors we had done so far already.

Our first snap back to reality came when we were told that the relief officer had to accompany us into the pod to "watch our back" while we worked in these two areas. So for the next 40 minutes, we sat in the control booth with the guards and waited for the relief officer to arrive. (You learn that everything moves slow in a correctional facility, especially the relief guard.) When he finally arrived, we were ready to take on this seemingly mundane area with real vengeance.

**N**ow, this guard talked to us for nearly five full minutes before allowing us to enter the pod, and successfully revived every fear we had while awaiting the arrival of this moment. Maybe we weren't cut out for this type of work after all.


Armed with our roll around cart, long pointy screwdrivers and assorted other tools capable of doing major damage to ourselves or to the inhabitants, we entered the "Pod of Dread." We had chosen the mental side to do first, no real reason, just a feeling that the inmates in this pod would be calmer due to the affects of the drugs they are given, rather than the other inmates bent only on our destruction next door.

The officer enters the room with us and announces our presence to all in attendance. "Now you boys don't hassle these gentlemen and they'll get done as soon as possible." With this said the guard takes station about ten feet behind us and begins talking with some of the locals. David and I immediately tackle the job at hand. With the experience of ten floors already behind us, we began to work methodically on the locking mechanisms above the doors of each cell. We only uncovered two cell mechanisms at a time, thus allowing for greater security of the rest of the area while we worked. It usually took less than ten minutes each to accomplish the factory required list of tasks that had to be performed on each lock, but this being the first time these locks had ever seen a preventative maintenance cycle, the going was a lot slower. I swear that every bit of dust, dirt, and grime that we had removed from the locks in the rest of the building wouldn't have added up to half of what we found here.

**W**e were both fully engrossed in the tasks we faced, and had even quit talking, except to grumble under our breath about conditions being allowed to get this bad, and how without our intervention, ruination would surely have come to these locking devices next week. Actually we were feeling pretty full of ourselves when I accidentally dropped the largest of our screwdrivers onto the floor. Now it had been about twenty minutes since we started the pod work, and we were completely at ease with the situation, what with our personal guard less than five feet away and all, when

reality began tapping me on the leg. I had had my hands full of grease to apply to the roller track when the screwdriver fell and had only turned around far enough to see that the tool had come to rest right next to my working cart on which I was standing. The tapping, I figured, was the guard handing me the elusive tool. But to my horror, when I turned around to take possession it, a quiet face was staring at me and holding the screwdriver for my retrieval. The face was not that of our personal guard, it was the face of a prisoner!!

**I** looked at him, he looked at me, and I looked for the door. David had, of course, noticed the tool drop, but he too was surprised to see that we were all alone inside of this pod with 28 mental prisoners in the high security area of this facility. We looked at each other then looked around the room. There on the other side of the protective glass, through two electrically controlled doors was our guard sucking on a cup of Kool-Aid™ and laughing with the other officers in the control room. He hadn't even seen the incident take place because he had his back turned to us!!

David and I both decided instantaneously and silently that this guard definitely was off our customer gift list for Christmas. We really didn't have any choice but to complete the job at hand, replace the overhead panels of the locks we were working on, and take an immediate lunch break at the best Mexican food restaurant in town. And, when we returned, we could sit in the control room with our guard and subtly let him know just how we felt about his actions concerning our safety. 



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## PEERING INTO THE CRYSTAL BALL

*"Many channel partners (your distributor) will tell you that 1993 was a good year but come up short when trying to explain why."*

by Trish Lilly

**W**e, as locksmiths, often don't see it, but the distributors we go to for parts and materials are affected by market trends just as much as we are. With a new President pushing for medical legislation and large chain stores grabbing more of the hardware market, they often face the same challenges we face. No longer is it everyone for himself in this industry. To succeed, the manufacturer, wholesale distributor and the locksmith must work together. Here are some words by Trish Lilly of the National Locksmith Suppliers Association.

What will 1994 bring for the locksmith supply industry? If only we could gaze into a crystal ball and find the answers—oh, life would be so simple!

Many channel partners (your distributor) will tell you that 1993 was a good year but come up short when trying to explain why. Double digit growth and record profits have been recorded by a number of distributors and manufacturers throughout the country. These same companies, however, are less than optimistic about business conditions in 1994. Why? Let's examine some of these concerns in greater detail.

### Legislative Influences

The foremost concern for many distributors and manufacturers is the impact impending legislation will have on the business community.

Two of the most talked about issues are Clinton's health care initiative and repercussions from the new tax provisions going into effect January 1, 1994. Health care costs are a primary concern as one manufacturer noted, "I've heard a lot about what benefits the plan will

provide, but nothing concrete about who's going to pay for it. Business will, of course!" This concern is echoed throughout the business community. While no one disputes the need for health care reform, there's a lot of worrying down in the trenches

Business owners are also concerned about the decreased business entertainment deduction from 80 percent to 50 percent. As a southwestern distributor described, "the decreased allowability in business deductions will gravely hurt many restaurants and related businesses, forcing more people onto the unemployment rolls. Increased unemployment will further strain our government resources, eventually impacting all of us." As an aside, he dryly commented that "this could be a double-edged sword. With higher unemployment comes increased crime rates which help our industry's bottom line!"

How this eventually affects the locksmith is yet to be seen. With anticipated increases in taxes and the possible burden of a health care program being placed on the shoulders of business, expect higher costs.

### Trends in Distribution

The distribution industry is rapidly evolving and changing.

One of the emerging trends is that alternative channels of distribution are growing faster than wholesaler-distributors. Whether it be the hardware chains or mass merchandiser, the times, as they say, are a changin'. These new channels threaten the livelihood of some segments of our industry. Distributors are losing market share and will

continue to do so unless they adapt to the changes in the marketplace.

Many key executives in the locksmith supply industry expressed concern over the new players. While these competitors offer lower pricing, the expertise and knowledge of locksmiths cannot be disputed. Locksmiths must aggressively combat this trend by promoting themselves as the security expert, the security professional. All channel partners need to band together to formulate plans to combat the effects of eroding profit margins as a result of new competition. On the same hand, distributors themselves are looking at new channels in an effort "to go after the end-user business like never before," according to one lock manufacturer. "Niche markets, like high security, look strong. Basic two-step distribution is hurting. Everyone is nervous.

"The competition from new channels will dramatically alter buying habits in the locksmith supply industry," predicts a major manufacturer. Distributors are adopting a lean and mean approach with smaller, more frequent orders and keeping inventory close to the bone.

The manufacturer/distributor relationship is undergoing some further changes as a difference of opinion develops between vendor and distributor. With tremendous margin pressures, both parties are looking at innovative ways to improve their bottom lines. Manufacturers, while supportive of distribution, are looking at alternative channels of distribution to improve their market share. Distributors are looking at new product alternatives to enhance the depth and breadth of their lines. It



seems that all parties are rethinking their business practices in order to compete more aggressively in 1994 and beyond.


Also, a large part of the industry has not enthusiastically embraced new technology developed to help streamline operations and improve efficiency. Few parties are willing to risk the capital investment necessary to upgrade their technological needs.

Well, enough of the doom and gloom! As the locksmith supply industry recognizes and confronts these new trends, positive forces are emerging.

Manufacturers, distributors and locksmiths alike have been working together, both as an industry, and individually. The Security Professional Council is a consortium of manufacturers, distributors, and locksmiths, who have joined forces to promote the locksmith. An aggressive marketing plan has been developed to promote consumer awareness of the security professional.

Partnerships and strong relationships formed between vendor, distributor and locksmith are showing benefits - increased sales and profits, greater market penetration, increased channel share, better positioning and improved working relationships.

Distributor objectives in 1994 include sales growth, improved gross profit and return on inventory investment, protection of market share, enhanced product mix and greater customer focus. Manufacturers also hope for sales growth, greater market penetration and improved profits. With cooperation in planning, greater communications and coordination of effort, these partners can share greater market impact and higher profits as well as providing enhanced value-added services for the end-user.

As we look toward 1994 we see many challenges on the horizon. But, there are opportunities as well. Just sift through the trends, assess their impact and plan for profit in 1994! 

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Ingenuity....  
security solutions.**

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# DISTRIBUTOR GUIDE

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DISTRIBUTOR GUIDE	PRODUCTS SOLD	REGIONS SOLD IN	VALUE ADDED SERVICES	MISC.																		
				CIRCLE RAPID REPLY NUMBER	CREDIT CARDS ACCEPTED	PRE-PAID SHIPPING MINIMUM	MINIMUM ORDER (blank if none)															
	AUTOMOTIVE PRODUCTS	BUILDER'S HARDWARE	LOCKSMITH PRODUCTS	ELECTRONICS	SAFES	NORTH EAST	SOUTH	MIDWEST	WEST	NATIONAL	CANADA	TECHNICAL SUPPORT	SHIPPING WITHIN 24 HOURS	MARKETING SUPPORT	TRAINING SEMINARS	WILL CALL AVAILABLE	OTHER (see legend below)					
<b>Ace Lock &amp; Security Supply</b> Union, NJ Phone 800-524-1224 Fax 908-688-2442																			\$25	\$500	Y	201
<b>Acme Security Systems</b> San Leandro, CA Phone 800-348-2263 Fax 510-483-4500																					Y	202
<b>Acme Wholesale Distributors, Inc.</b> New Orleans, LA Phone 800-788-2263 Fax 504-837-7321 3 Branch Locations. Call for the one nearest you.																			\$25	\$500	Y	203
<b>Allied Locksmith Supply</b> Youngstown, OH Phone 800-544-2102 Fax 216-726-0965																	A 1			\$500	Y	204
<b>American Lock &amp; Supply, Inc.</b> Anaheim, CA Phone 800-854-8775 Fax 800-833-1397 10 Branch Locations. Call for the one nearest you.																	2			\$350	Y	205
<b>Andrew's Wholesale Lock Supply</b> Lebanon, PA Phone 800-544-0519 Fax 717-274-6659																					Y	206
<b>Aristo Sales Co.</b> Long Island City, NY Phone 800-221-1322 Fax 718-937-5794																	A	\$50	\$300	Y	207	
<b>Armstrong's Lock &amp; Supply, Inc.</b> Atlanta, GA Phone 800-726-3332 Fax 800-998-1733 3 Branch Locations. Call for the one nearest you.																	3 4	\$25	\$500	N	208	
<b>Bell's Security Sales, Inc.</b> Bloomfield, NJ Phone 800-772-2268 Fax 201-743-6357																			\$10	\$600	Y	209
<b>Boston Lock &amp; Safe Co.</b> Brighton, MA Phone 800-252-5757 Fax 617-787-3425																	5				Y	210
<b>Boyle &amp; Chase, Inc.</b> Accord, MA Phone 800-325-2530 Fax 617-335-5342																					N	211
<b>Canada Lock Products, Ltd.</b> Toronto, Ontario Phone 800-268-1306 Fax 416-248-9945 1 Additional Branch. Call for location.																		\$50		N	212	
<b>Clark Security Products</b> San Diego, CA Phone 800-654-2086 Fax 619-565-4805 6 Branch Locations. Call for the one nearest you.																	A B				Y	213
<b>Commonwealth Lock Co.</b> Cambridge, MA Phone 617-876-3301 Fax 617-661-3168																			\$500	Y	214	
<b>Cook's Supply, Inc.</b> Denver, CO Phone 800-445-4008 Fax 303-292-4569																	B 6		\$150	N	215	
<b>Craftmaster Hardware Co., Inc.</b> Hackensack, NJ Phone 800-221-3212 Fax 201-646-0181																	A 7	\$50	\$450	Y	216	
<b>DiMark International, Inc.</b> Santa Maria, CA Phone 800-235-2435 Fax 805-928-8034																		\$25	Varies	Y	217	
<b>Door Hardware Distributors, Inc.</b> Milwaukee, WI Phone 800-629-8905 Fax 414-291-5685																	8 9				Y	218

A-Computer Stock Checking B-Fax Order Discounts 1-Environmentally Safe Packaging 2-Computer Access Programs  
3-Co-Op Advertising 4-Merchandising 5-Free MasterKey Service for ICC 6-Friendly, Personal Service 7-Experienced Phone Representatives  
8-Master Door Locks 9-Full Line Inventory



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MINI  
SECTION

<b>DRK Specialties</b> Pleasanton, CA Phone 800-654-1650 Fax 510-417-8985																		\$50	\$35	Y	219
<b>Electric Lock Supply</b> Los Angeles, CA Phone 800-858-1726 Fax 310-568-1507																		\$25	\$3000	Y	220
<b>Eljay Express</b> Wheeling, IL Phone 800-432-1311 Fax 708-272-9249																A				N	221
<b>Ewert Wholesale Hardware, Inc.</b> Asip, IL Phone 800-451-0200 Fax 708-597-0881																		\$25	\$1500	Y	222
<b>Fortress Safe &amp; Lock</b> Cincinnati, OH Phone 800-562-0295 Fax 513-772-4397																			\$500	Y	223
<b>Fradon Lock Co, Inc.</b> Syracuse, NY Phone 800-447-0591 Fax 315-472-0958																1		\$50		Y	224
<b>Grace's Wholesale &amp; Supply Division</b> Hastings, NE Phone 402-462-2737 (between 1 & 9 p.m.)																			Depends on Product	N	225
<b>R.A. Graham Co.</b> Worcester, MA Phone 800-333-3933 Fax 508-755-6584																				N	226
<b>G-U Hardware, Inc.</b> Newport News, VA Phone 804-873-1097 Fax 804-873-1298																				N	227
<b>Hardware Agencies Limited</b> Toronto, Ontario Phone 800-268-6741 Fax 416-462-1922																		\$25	\$500 out of city \$350 in	N	228
<b>Hardware Sales &amp; Supply</b> Livonia, MI Phone 800-521-0956 Fax 800-272-4409 2 Branch Locations. Call for the one nearest you.																A B	\$50	\$500	Y	229	
<b>Hardware Suppliers of America, Inc. (HSI)</b> Winterville, NC Phone 800-349-5625 Fax 800-334-5635 6 Branch Locations. Call for the one nearest you.																2				N	230
<b>H&amp;H Lock &amp; Security Wholesalers</b> Gaithersburg, MD Phone 800-772-9811 Fax 301-948-5265																3	\$20			Y	231
<b>H. Hoffman Co.</b> Chicago, IL Phone 800-323-1918 Fax 708-456-0951 7 Branch Locations. Call for the one nearest you.																B 4	\$45	\$500	Y	232	
<b>Intermountain Lock &amp; Supply Co.</b> Salt Lake City, UT Phone 800-453-5386 Fax 801-485-7205 1 Additional Branch. Call for location.																B 5	\$50	\$500	Y	233	
<b>JLM Wholesale, Inc.</b> Oxford, MI Phone 800-522-2940 Fax 800-782-1160																6 7				Y	234
<b>Jo-Van Distributors</b> Toronto, Ontario, Canada Phone 800-268-5731 Fax 416-752-3845																	\$25			Y	235
<b>Kenco Supply Co.</b> Omaha, NE Phone 800-228-2266 Fax 800-228-4175																8 9		\$350		Y	236

A-Computer Stock Checking B-Fax Order Discounts 1-Fast Pay Discount 2-8 a.m. to 8 p.m. sales 3-Custom Modifications  
4-LSDA "Exclusive Brand" 5-Computer Order Entry 6-Electrical Advice Available 7-ADA Approved Hardware 8-Free Catalog  
9-In-House Custom MasterKey System



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<b>Key Mart, Inc.</b> Stuart, FL Phone 800-226-7755 Fax 407-220-7920																					Y	237
<b>Key Sales &amp; Supply Co., Inc.</b> Detroit, MI Phone 800-445-(KEYS) Fax 313-831-7758																				F.O.B Detroit	N	238
<b>Key Supply</b> San Francisco, CA Phone 415-626-2528 Fax 415-628-4598																		\$35	\$300		N	239
<b>Lockmasters, Inc.</b> Nicholasville, KY Phone 800-654-0637 Fax 606-885-7093																		\$50	\$50		Y	240
<b>Locks Co.</b> Miami, FL Phone 800-288-0801 Fax 305-949-3619																		\$25			Y	241
<b>Lockwise Products, Inc.</b> Miami, FL Phone 800-447-5616 Fax 305-623-9564																	1 2	\$35	Varies		Y	242
<b>Mayflower Sales Co., Inc.</b> Brooklyn, NY Phone 800-221-2052 Fax 718-789-8346																		\$25	\$125 \$350 \$500		Y	243
<b>Maziuk &amp; Co. Inc.</b> Syracuse, NY Phone 800-777-5945 Fax 315-472-3111																	A 3	\$10	\$300		Y	244
<b>McDonald Dash Locksmith Supply, Inc.</b> Memphis, TN Phone 800-238-7541 Fax 901-366-0005																			\$500		Y	245
<b>McManus Locksmith Supply, Inc.</b> Charlotte, NC Phone 800-438-5567 Fax 704-332-6664																		\$35	\$500		N	246
<b>Midwest Wholesale Hardware</b> Kansas City, MO 1 Add'l Branch. Call for location Phone 800-821-8527 Fax 800-821-6581																		\$100	\$750		Y	247
<b>Mid-South Locksmith Supply</b> Memphis, TN Phone 800-238-6166 Fax 901-795-3475																	A 4	\$25			N	248
<b>Monaco Lock Company, Inc.</b> Jersey City, NJ Phone 800-526-6094 Fax 800-845-LOCK																					N	249
<b>Northeast Lock Corp.</b> Clifton, NJ Phone 800-524-2575 Fax 800-524-2576																		\$25	\$25		Y	250
<b>Omaha Wholesale Hardware</b> Omaha, NE Phone 800-238-4566 Fax 800-538-4566																	A		\$500		Y	251
<b>Orchard Lock Distributor, Inc.</b> Hamden, CT Phone 800-233-2146 Fax 203-624-4083																		\$35	\$350		N	252
<b>Agences W. Pelletier (1980) Inc.</b> Montreal, Quebec, Canada Phone 514-276-6700 Fax 514-276-9413																	5 6		Varies		Y	253
<b>Pimlico Key Service Inc.</b> Baltimore, MD Phone 800-638-3815 Fax 410-367-7319																			\$500		Y	254
<b>Pride Barco Lock Co.</b> Santa Barbara, CA Phone 800-578-1816 Fax 805-965-2535																		\$35	\$30		Y	255
<b>RA-Lock Co.</b> Cedar Hill, TX Phone 800-777-6310 Fax 214-291-1346																					N	256

A-Computer Stock Checking B-Fax Order Discounts 1-Locksmith Service Center 2-Price List on Disk 3-Priced Packing Lists  
4-Volume Discounts 5-Monthly Specials 6-MasterKeying Charts



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	AUTOMOTIVE PRODUCTS	BUILDER'S HARDWARE	ELECTRONICS	LOCKSMITH PRODUCTS	SAFES	NORTH EAST	SOUTH	MIDWEST	WEST	NATIONAL	CANADA	TECHNICAL SUPPORT	SHIPPING WITHIN 24 HOURS	MARKETING SUPPORT	TRAINING SEMINARS	WILL CALL AVAILABLE	OTHER (see legend below)	MINIMUM ORDER (blank if none)	PRE-PAID SHIPPING MINIMUM	CREDIT CARDS ACCEPTED	CIRCLE RAPID REPLY NUMBER
<b>E.L. Reinhardt Co.</b> Vernon Hts., MN Phone 800-328-1311 Fax 612-481-0166																			\$900	Y	257
<b>Richmond Industrial Supply</b> Staten Island, NY Phone 800-462-9997 Fax 718-981-5865																				Y	258
<b>Rudy's</b> Cleveland, OH Phone 800-248-RUDY Fax 216-641-0060																		Varies		Y	259
<b>Safemasters, Inc.</b> Alexandria, VA Phone 800-633-9977 Fax 703-750-1814 10 Branch Locations. Call for the one nearest you.																	1 2			Y	260
<b>Security Lock Distributors</b> Needham, MA Phone 800-847-5825 Fax 800-878-6400																				Y	261
<b>Serrubec Inc.</b> Montreal, Quebec Canada Phone 800-361-0243 Fax 514-631-0494																		\$25		N	262
<b>M. Shepse Co. Div. American Bionics</b> Pittsburgh, PA Phone 800-666-6007 Fax 412-381-5122																		\$10	\$250	Y	263
<b>So-Cal Lock &amp; Supply</b> National City, CA Phone 800-521-3551 Fax 619-474-2440																			Varies	Y	264
<b>Southern Lock &amp; Supply</b> Pinellas Park, FL Phone 800-282-2637 Fax 800-447-2299 3 Branch Locations. Call for the one nearest you.																	3 4	\$25	\$500	Y	265
<b>Stone &amp; Berg Wholesale Locksmith Supply Co.</b> Worcester, MA Phone 800-225-7405 Fax 800-535-5625																	5 6			Y	266
<b>M. Taylor Inc.</b> Philadelphia, PA Phone 800-233-3355 Fax 215-288-2511																	A 7	\$15	\$400	Y	267
<b>Taylor Security &amp; Lock Co., Inc.</b> Gaithersburg, MD Phone 800-676-7670 Fax 301-948-1029																				Y	268
<b>Top Notch Distributors, Inc.</b> Honesdale, PA Phone 800-233-4210 Fax 800-854-4146 1 Additional Branch. Call for location.																				Y	269
<b>Tram International Inc.</b> Delray Beach, FL Phone 800-843-2440 Fax 800-448-8290																	A		\$75	Y	270
<b>Turn 10 Wholesale</b> Marietta, OH Phone 800-848-8780 Fax 614-374-3322																	8 9			Y	271
<b>Tweed's Locksmith Supply</b> Portsmouth, VA Phone 800-544-4482 Fax 804-399-1636																		\$10	\$400	Y	272
<b>U.S. Lock Corp</b> Brentwood, NY 3 Add'l Branches Call for locations Phone 800-925-5000 Fax 800-833-5625																		\$50	\$500	Y	273
<b>Wilco Supply</b> Oakland, CA Phone 800-745-5450 Fax 510-653-5397																	10 11	\$50	\$250	Y	274
<b>Williams Key Co., Inc.</b> St. Louis, MO Phone 800-325-1779 Fax 314-231-4609																		\$40 To Ship	\$500	Y	275
<b>Zipf Lock Co.</b> Columbus, OH Phone 800-849-1577 Fax 600-228-6320																		\$25 \$100 Initially	\$750 UPS Zones 2-4	N	276

A-Computer Stock Checking 1-Sargent & Greenleaf 2-Catalog & Brochure Available 3-Special Locksmith Programs 4-Annual Trade Show  
5-Catalog & Price Book 6-Bi-Monthly Newsletter 7-Customer Referral Program 8-Free Freight 9-Product Selection 10-Catalog on Disk  
11-Key Blank Cross Reference Program



## THE SOUTHERN STEEL 10120M

*"These locks are usually remotely controlled and actuated by an operator in a central control room."*

by Rick Segerstrom

Beginning with this article we are going to examine the locks and controls that are used mostly in the jail and detention systems. These locks are usually remotely controlled and actuated by an operator in a central control room, or in the case of a pod of cells can be actuated by the custodian in charge of this group. There are usually controls in the main control room that will allow the override of the custodian's console in favor of the main control room. These locks are also equipped with a mogul key to operate the lock in case of power failure or electrical interruption of any kind. It is not usual for any lock in the detention field to automatically open in the event of power loss. This is for obvious reasons. The key on these locks can actuate all functions of the lockset that are designed into its operation. These locks are wired to be able to unlock groups of them simultaneously, or individually as may be required by circumstance. Several of the locks we are going to discuss have features allowing for the operation of the lock mechanism only periodically. This allows the locks to remain in the open position with the bolt retracted for certain periods of time, for example, open during the day and locked at night. This feature can allow free access to the inhabitants without having to actuate the lock for egress and access. Lets look at one of these locksets.

The Southern Steel 10120M Electro-Mechanical Deadlock.

10120M-1: keyed one side

10120M-2: Keyed both sides

Lock Size: 5-7/16"x3-3/4"x12"

Lock Weight: 19 pounds

Bolt Size: 1-1/2"x 3/4"

Bolt Throw: 3/4"

**APPLICATIONS:** Medium security swinging doors for cells and corridors that are to be unlocked from a remote location. Jamb mounted. Door position indicator switch, door closer and heavy duty door pull are recommended.

### **FUNCTION:**

**ELECTRIC-** remote pushbutton switch activates a motor which retracts the lock bolt. Bolt remains retracted until door is opened approximately 2", then it releases and automatically snap/deadlocks when door is closed.

**MECHANICAL-** Bolt retracted by a Mogul key at the door and remains retracted until door is opened, whereupon bolt extends.

### **TECHNICAL DATA:**

Standard Finish: Galvanized (trim and face plate are U54, optional U526D)

COVER: Cold rolled steel plate

CASE: Cold rolled steel plate

FACE PLATE: Brass Alloy

LOCK BOLT: Stainless steel

ROLLER BOLT: Stainless steel

MOGUL CYLINDER: Yellow brass

MOGUL KEYS: Silicon bronze/copper alloy

PIN TUMBLERS AND ENGAGING BALLS: Stainless steel. Five tumblers per lock.

ELECTRICAL: 115 VAC, 1 Phase, 60 Hz 0.3 amp

### **STANDARD FEATURES:**

\* Roller bolt limit switch

\* Latchbolt limit switch

\* Manual latchback

**NATIONAL**  
AUTO LOCK SERVICE, INC.

National Auto Lock Service, Inc. offers a wide range of equipment and services for the Automotive Locksmith. From tools and hard to find key blanks to transponder programming, we can take the mystery out of car service. We accept credit card orders, and can ship COD. Contact us for the latest in automotive technology.

[www.laserkey.com](http://www.laserkey.com)



- \* Strike with fasteners
- \* Day keyed cylinder
- \* Molex plug connectors

**SPECIAL FEATURES:**

\* Half cycle holdback- remote two position maintained contact switch is required for this function. Bolt is retracted electrically when switch is in open position and extended when switch is in locked position. Specify "D"

\* Manual holdback- Bolt retracted by key remains retracted until manually projected with key. Specify "H"

One of the facilities I maintain is entirely equipped with this particular locking device, therefore, I am quite familiar with its workings. I can say unequivocally that this lock has given superb service to this facility on a day to day basis. I have never had a major malfunction of this lock or any of its component parts. In the entire three years that I have been performing their service, the biggest failure was a motor in one lock. This facility has over 120 of these locks in use. Another problem I run into is a malfunctioning limit switch.

These switches are available from a local electrical supply and cost about \$9.00 each. In all fairness I must also state that this particular facility has a water problem. It seems that ground water seeps into the basement areas and permeates through the rest of the building in the way of humidity. It is not the fault of the switches. I'm not sure the proper name for it, but in Texas I call it a white calcium buildup, the white powdery stuff that accumulates on electrical connections. This is especially prevalent in high humid areas. The facility has corrected the moisture problem last year and since then I haven't had to replace a single switch. I can't stress enough that these locks are extremely heavy duty and can withstand almost anything.

The 10120M Electro-Mechanical Deadlock is a handed lock. If you want to order one you must specify handing. This goes for most detention style locks. Also you must specify whether it is to be standard or reverse bevel on the bolt.

Now since it is not my intention to make anyone who reads these articles thinks they are a substitute for going to a factory school and receiving certification from that factory to service their locks, I'm not going to go into the electrical schematics or the troubleshooting of these locks in a very detailed manner. The Southern Steel factory publishes the following list concerning SERVICE AND PREVENTATIVE MAINTENANCE:

1. Check often for foreign objects in keepers and strikes.



The 10120E Electro-Mechanical Deadlock from Southern Steel.

2. Check for rough operation.

3. Spray silicon lubricant on all moving parts every three months.

4. Check for correct light indication.

5. Check for any loose screws and tighten. (once a month is recommended).

The correct light indication refers to the control panel and the light indication for the door either in the locked and secured position or in the open position. A standard has been adopted concerning the use of red and green lights. Red lights indicate danger in many cases and green lights represent safety. Therefore, in the case of light indications on control panels, a green light signifies a fully locked and latched door, while a red light represents an open condition.

I want to touch upon door position indicators lightly here. There are several electric position switches wired in certain ways to give the proper condition of a

door. These are usually attached to the door itself. These can be parasitic or concealed. There are also switches to give indications on the latchbolt and or roller bolt of the lock itself. All of these must be in the proper position to get a green light indication on the panel. For instance, if the door is completely closed, the guard may think that the door is secure, however if the bolt is not fully extended, say the inmate has put a foreign object in the keeper to keep the bolt from extending all the way, even though the door is closed the indicator light will be red. This tells the guard that there is something not right and to check the door.

Here is next months article this month; The Southern Steel Electro-Mechanical Deadlock model 10120E. This model is almost identical to the 10120M. The only difference between the model 10120M and the model 10120E is the actuating device for the bolt. Where the model 10120M uses an electric motor to drive the bolt, the model 10120E uses a powerful solenoid to do the same thing. All other specifications are the same. The M denotes motor and the E denotes solenoid. Something else for your information, I didn't mention it till now because it is seldom used, but these locks can be equipped with a knob feature that allows for activation of the latch with a knob. The knob is only used on one side however and I have yet to encounter this particular feature.

Next month the 10195 Electrolock.



# BUSINESS BRIEFS

## News from the Locksmithing Industry

### Industry Interview...

You can't say Lori Lock without saying Andy Meade. The two are synonymous.

Meade was a Lori charter stock holder and became its National Sales Manager. Initially starting as a tool and die metal stamping fabrication company, Meade's responsibility involved the sales of tool and die stampings. But it was only a short time before Lori found themselves supplying to the lock industry, manufacturing OEM lock components for Eagle lock company.

It was here that Meade established his and Lori's roots in the door and lock hardware industry. Realizing the available market open to manufacturers of lock and security products, Lori turned its vision towards production of its own locks.

In 1968, Eagle engineer Frank Testa joined Lori, and was instrumental in transforming Lori into a manufacturer of locks. With Meade taking charge as Vice President of Sales and Marketing, the Lori Night Latch and cylinder was introduced, as well as a new venture for both Lori and Meade.

In 1978 Lori was purchased by the Swiss Bauer Corporation, known in the United States as Kaba. Meade stayed on as Vice President of Sales and Marketing until 1991 when he purchased Lori back from Kaba, becoming its president and principle stockholder. To date, Meade has maneuvered Lori into a leading position in the lock industry, manufacturing various latches, deadbolts, cylinders and specialty locks.

When asked what influences he sees the future applying to the locksmith industry:

"Electronics is having a huge impact on our industry," says Meade, "and will continue to have a great impact over the next seven or eight years."

This impact has lead to the recent move by Lori into the electronic lock industry with the recently purchased assets of Delta Controls, researching new avenues in light of future trends.



Andy Meade

"We can supply total systems for drug cabinets, for instance," said Meade. "Offering locking systems that use keypads or electronically controlled locks and keys."

"We plan on introducing products to niche markets using new technologies," he said.

What does Meade see as the locksmiths' greatest need?

"The locksmith needs to educate himself in business," says Meade.

"Locksmiths are generally trained well and competent in doing the work. They can go out and install a deadbolt or a lock on a door and walk away with a hundred or more dollars."

"What he (the locksmith) needs to do is to start expanding his business into related skills."

"When he puts a deadbolt in, he should be looking for other opportunities by looking through the whole house and offering other related services like window locks, alarms and other things."

"A lot of competition for the locksmith is coming from large chain stores like Home Depot. To compete with them, the locksmith must become more visible, he must learn to market himself," according to Meade.

Meade suggests enrolling in business courses or taking a Dale Carnegie marketing course.

"Here," says Meade, "the locksmith can learn the skills needed to market himself."

"When they go into a home or a business, they will use that opportunity to tackle the entire security issue."





## Industry News...

**Quintilian Institute Services**, is pleased to announce that it has contracted the services of C. Allan Halverson and Mark Bates as instructors for 1994. Bates and Halverson, both independent Security Consultants, have joined forces with Quintilian head Carl Cintron to completely rewrite and update every class the Quintilian offers. Aimed at Government and Commercial Locksmiths, the all new programs at the Quintilian use the proven method of hands-on training to help make the courses both challenging and fun...

**Dortronics Systems Inc.** announced the appointment of Bryan R. Sanderford as Western Regional Sales Manager to promote the firm's expanded line of electromagnetic locking equipment. His responsibilities include the recruitment and management of independent sales agents for all states west of the Mississippi River...

**Aaron Fish**, chairman and CEO of **Unican Security System Ltd.**, announced that effective October 18, 1993, Peter Blaikie will become president and chief operating officer of the company. Blaikie has been providing legal counsel since the company first went public in 1967, has sat on the board of directors for a decade, and he and Aaron Fish are longtime friends...



Peter Blaikie, new Unican CEO.

**Bill Tell**, President, and **Paul T. Kosakowski**, Vice President Sales and Marketing, **PDQ Industries, Inc.** announce the appointment of a new representative agency for the state of Michigan, **Architectural Sales Associates (ASA)** of Birmingham, Michigan...

**Arius, Inc.** announced that **Jim Heaton** has joined the company as the Mid-Atlantic Systems Specialist for Virginia and Maryland. He will work out of the Beltsville, MD branch...



Jim Heaton of Arius.

**Vindicator Corporation**, the creator and manufacturer of Vindicator Lock, announces that **Armor Safe Technologies (Vista, CA)** will begin providing the new Vindicator Lock on their line of safes. Announced in June, the Vindicator Lock is an advanced, microprocessor-based electronic lock which provides secure access and an audit trail for safes. It is designed for use on safes with multiple compartments...

**Clark Security Products** is pleased to announce the appointment of **Jack Berg** and **Peter Berg** to the Clark Team. With 33 years of experience in the locksmith industry, Jack has earned an outstanding reputation providing innovative and value-added programs to locksmiths in New England. He will focus on Clark's product management and sales development. Peter has been appointed a member of the Clark Security Products management team and will be working in the New England area as the Branch Manager...

**Aiphone Corporation**, has been notified by its manufacturing parent, **Aiphone Company, Nagoya, Japan**, that they have been awarded **ISO 9001 Certification**. Aiphone Company is the world's largest manufacturer of intercom systems.

**Sargent & Greenleaf Inc.** has named **Brent Miller** Regional West Coast Sales Manager, responsible for sales and customer

service throughout an 11-state region from the Pacific Coast east to Colorado. Miller joins S&G with extensive management, OEM sales and marketing experience in both the security and electronics industries...

**Russell Alsbrook**, National Sales Manager of **All-Lock Company** presented **Keith Hommer** with his Grand prize 27" Color television set. Mr. Hommer an employee of **G.C. Lock & Key** in Pompano Beach, Florida won the TV in the All-Lock Sweepstakes held at the ALOA show...



Keith Hommer (left) with his All-Lock Sweepstakes grand prize presented by Rusty Alsbrook (right).

**Stan Gabay**, Director of Sales and Marketing at **Ace Lock and Security Supply**, Union, New Jersey, has just announced the opening of **aXcess**, a new division that specializes in access control requirements. The newly formed aXcess control products, electronic door hardware and their specialized card and digital access controls, electro-magnetic locking hardware, electro-mechanical locking devices, power supplies and station controls...

**Peter Arezzini**, is the manager of the Commercial Business Unit of the **Schlage Lock Company**. He is responsible for Schlage's lockset products sold to the commercial building industry...



Peter Arezzini, Schlage's Commercial Business Unit manager.



# LIGHTER SIDE

## Food For Thought

"I've lost the keys to a house I'm trying to show," the realtor said, when she called. "Can you come change out the locks and make me a couple of keys this morning?"



by  
Sara Probasco

When Don got to the house, the door was standing open. "I thought you had lost the keys," he said. "How did you get in?"

"Oh, getting in is no problem," was the reply. I just latch onto one of the neighborhood kids and get them to reach in through the mail slot and turn the knob."

"You're kidding," Don replied.

The realtor was grinning proudly. "I'll show you." Closing the door, she walked down the front sidewalk and called to a young child who was playing in the next yard.

Within minutes, the little girl had reached in through the brass mail slot in the front door, wriggled her arm about until she could reach the knob, and opened the door.

"See?" the realtor said, patting the child on the head approvingly. "Nothing to it."

"Hmmm," Don muttered. "Who all knows about this?"

"Oh, just a couple of neighborhood children we've called upon to help us, over the past couple of weeks. In fact, a little boy down the street was the one who gave us the idea in the first place. He said he sometimes got into his grandmother's house that way."

"And how many kids around here do you suppose know about this by now?" Don asked.

"We've only called on two or three. I'm sure they wouldn't have said

anything to anyone else," the realtor said, but her voice sounded less confident than it had earlier.

"Let's see," Don said. Glancing about, he spied a couple of small boys playing in a sand box across the street. "Are either of those kids in on this?" he asked the realtor.

"Not that I know of," she replied.

Walking across, Don knocked on the front door and asked the mother's permission to ask the tikes a few questions. Permission granted, he squatted down to their level, "I wonder if you can help me," he said. "I've been having a problem opening the front door of that house." He pointed across the street. "Could you give me an idea how to get in?"

"Sure," one of the little boys replied. "Just reach in through the mail slot. Everybody knows that."

"So, you see," Don said to the realtor a few minutes later, "by teaching the neighborhood children how to get in, you've sabotaged your security. Changing the locks on this house won't help, unless you can stop neighborhood kids from reaching in through the mail slot to open the front door."

"What do you suggest?" she asked.

"Either seal up the mail slot, permanently, or go to double cylinder deadbolts and don't leave the inside key in the lock."

"But, isn't that dangerous, being inside a locked house with no key in the door? What if there was a fire, or something?"

"Just hang the key on a cup hook convenient to the door, but out of reach of the mail slot. It's a good idea to put the hook low enough so someone trying to get out can reach the key while crawling on the floor. That way, if there is smoke, they can probably stay below it."

"I can't believe she hadn't thought of the dangers," I said later, when Don was telling me about the incident.

"She said she didn't think children the ages of those she'd used would go in, on their own. Obviously, it never occurred to her that an unscrupulous adult might use one of the children to get into the house."

"Where has she been, while the news media was reporting on criminals using little kids to rob houses, knowing the children are too young to be prosecuted, if caught?"

"I guess she never thought about that," Don said.

"I think that's a big problem in our society, today: people don't think things through as they should. Take the lady who came into the shop this afternoon, for example."

"Which one was that?"

"The one who said the duplicate house key we had made for her last week didn't work. I think you were out of the shop, at the time. She was upset, ranting about how she could have gotten a bad key made anywhere in town, that she'd come to us because we were supposed to be the experts, etc., etc., that the man who cut the duplicate for her had assured her it was guaranteed, and so on."

"What did you say?"

"What could I say? I told her we'd either replace it with a working key or refund her money. She wanted a key. When she produced the original, I couldn't see the problem, even using the micrometer, but I cut her a new one and asked her to try it in her lock right away and let us know if there was any problem."

"And?"

"She was back an hour later, saying the new one wouldn't work, either. I checked it every way I knew and could find no discrepancy between the

*Continued on page 102*



# THE 1993 TECHNITIPS CONTEST WINNERS

*The very best Tips of the year are awarded with these great prizes.*

## FIRST PRIZE



SILCA'S BRAVO USA

**Glenn Dzioba,  
Texas**

Glenn won first place for his entry on modifying a steering wheel lockplate compressor to work on the extended steering shaft of GM's with airbag.

## SECOND PRIZE



HPC'S PUNCH MACHINE™

**R.W. Staples,  
Washington**

R. W. won second place with his tip on how to remove the outer portion of a safe dial.

## THIRD PRIZE

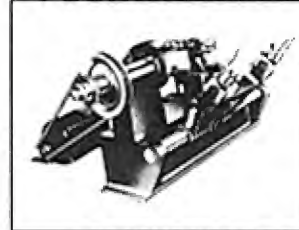


ESP 5000

**Brad McKenzie,  
Ohio**

Brad picks up third prize with his tip on removing the Schlage Interchangeable Core.

## FOURTH PRIZE



BELSAW 200

**Raymond C. Denkewicz,  
Massachusetts**

Raymond's prize winning tip tells us of a method or technique for making Sentry safe manipulation a little easier.

## FIFTH PRIZE



HPC 9120

**Jay Christie,  
North Carolina**

Jay takes the fifth place prize with his in-depth tip on making keys for vehicles using the Ford 10 cut system.

## SIXTH PRIZE



\$100 CASH & FLAT RATE MANUAL

**Richard Garoppo,  
California**

Richard's tip grabs him sixth place. Richard describes a method for making the opening of a USCAN fire safe a little easier.

## SEVENTH PRIZE



GENERAL CODE BOOK SET (NCCB)

**Giles Kalvelage,  
Illinois**

Giles places seventh with his tip on a simple technique used to work on later model General Motor vehicles with telescoping columns.

## EIGHTH PRIZE



PADLOCK CODE BOOK SET (NCCB)

**Leo Koulogianes,  
Tennessee**

Leo's tip details how to make servicing the Papaiz double cylinder profile cylinder a much easier job.

## NINTH PRIZE

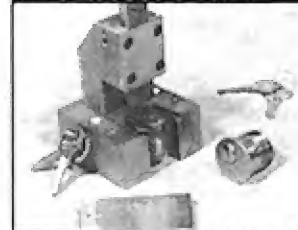


FOREIGN CODE BOOK SET (NCCB)

**Vaughn Keaton,  
Maine**

Vaughn takes the ninth prize with his tip on using the HPC 1200CM to cut a seven pin Best/Falcon keyblank.

## TENTH PRIZE

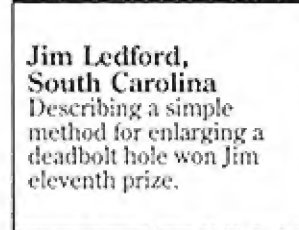


ACCUMARK KEY & LOCK STAMP

**J.F. Nowacki,  
Michigan**

With his tip on removing the 1993 Chrysler module ignition cylinder, J. F. grabs tenth prize.

## ELEVENTH PRIZE



PLASTIC HEADED KEY EMBOSSE

**Jim Ledford,  
South Carolina**

Describing a simple method for enlarging a deadbolt hole won Jim eleventh prize.



# TECHNITIPS

## Helpful hints from fellow locksmiths

Send in your tips  
and win.

### HOW TO ENTER

All you need to do  
is submit a tip,  
covering any aspect  
of locksmithing to

**The National  
Locksmith.**

Certainly, you have  
a favorite way of doing things that  
you'd like to share with other  
locksmiths. Why not write it down and  
submit it to: *Robert Sieveking*,  
*Technitips' Editor, The National  
Locksmith, 1533 Burgundy Parkway,  
Streamwood, IL 60107.*

Tips submitted to other industry  
publications will not be eligible! So get  
busy and send in your tips today. You  
may win cash merchandise, or even  
one of many key machines or code  
book sets. At the end of the year, we  
choose the winners of the listed prizes.  
Last year dozens of people walked off  
with money and prizes. Wouldn't you  
like to be one of the prize winners for  
1993? Enter today! It's a lot easier  
than you think.

### EVERY TIP WINS "LOCKSMITH BUCKS!"

Yes, every tip published wins a prize.  
But remember, you must submit your  
tip to **The National Locksmith**  
exclusively. Each and every tip  
published in Technitips wins you \$25  
in Locksmith Bucks! Use this  
spendable cash toward the purchase  
of any books or merchandise from  
**The National Locksmith.** You will  
also receive a Bonded Locksmith  
bumper sticker and decal. Plus you  
will be eligible for really big prizes.

### BEST TIP OF THE MONTH

If your tip is chosen as the best tip of  
the month, you will win \$50 in cash as  
well as \$35 in Locksmith Bucks! Plus  
you will receive a Bonded Locksmith  
bumper sticker, decal and a  
Locksmith cap. And, you may win one  
of the annual prizes.



by  
Robert Sieveking

## These Prizes Awarded Each Month!

- All-Lock A 7000 VATS Decoder
- HPC Pistolpick
- Silca Rubberhead Keyblanks (100 Blanks)
- ESP PR-13 Professional Lock Pick Set
- Sieveking Products EZ-Pull GM Wheel Puller
- Fort Lock Backer Board Display Panel

**Submit your tip and win!**

## January's Best Tip

As a  
locksmith,  
deadbolt  
installations are  
an important  
part of my  
business. I have  
found that hole  
saws are the best  
tools for making  
large diameter  
holes in both  
wood and metal  
doors. Sadly,  
their life is limited, and they have  
been regarded as "throw-away"  
items. I recently discovered that it is  
entirely possible to re-sharpen these  
hole saws. Use a Dremmel tool and

### Sharpen a Hole Saw? NO PROBLEM

Sharpen only the flat  
face of each tooth



Illustration 1

abrasive cut-off wheel to sharpen the  
face of each tooth,  
as you see in  
illustration one.  
Be careful to hold  
the grinding disk  
at the correct  
angle to the tooth,  
so as to preserve  
the rake angle as  
it is sharpened.  
This will allow  
you to resurrect  
some of those old  
hole saw cups,  
and get some  
extra holes at no extra cost. Good  
luck, drill and prosper.

Del Silvert  
Ohio

### All-Lock VATS Decoder Winner

I have a tip for servicing the profile  
type lock cylinders.

First, you will need to remove the  
plug retaining clip and rotate the plug,  
to allow the pin retaining wire to be  
inserted. If you have a working key,  
file away enough of the back of the  
key blade to allow the retainer to be  
inserted with the plug rotated 180  
degrees, as you see in illustration two.  
If there is no key, you will need to pick  
the lock. Either way, the plug must be  
rotated 180 degrees from the key pull  
position.

Second, make a pin retaining wire  
clip. I used .057" music wire. Push the  
wire retainer through the cylinder at  
the top, as you see in the illustration.  
Bend the wire over the top of the  
cylinder and hold. You may want to  
use a small piece of duct tape across  
the face of the cylinder and across the  
top, to hold the clip in place as you  
remove the plug. Carefully remove the  
plug, allowing the wire to retain the  
top pins. Replace the plug, as you  
removed it. It may take a little  
practice. If you are making a key for  
the cylinder, only one plug need be



### Profile lock service

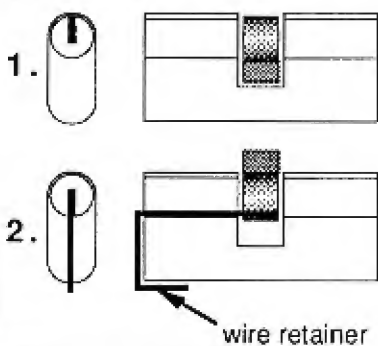


Illustration 2

removed. If you are changing the combination, this method is only necessary when replacing the second plug.

Larry Bennett  
California

### HPC Pistolpick Winner

This technitip can be used when replacing retainers on various locksets. In some cases, there simply is not enough room to maneuver the retainers in place, and hold them in the proper position as the lock or mechanism is assembled. If you will

roll a tiny ball of bees wax, and press it to the tip of a lock pick, you can stick the retainer to the pick and place it easily in the tightest quarters. If you need to keep something in place, say a ball detent or a tiny cam actuator, while the rest of a mechanism is assembled. Use a little heavy grease. The grease will hold the part in position as the mechanism is assembled, and act as a lubricant when the assembly is complete.

Anthony DeFranco  
New Jersey

### Silca Keyblanks Winner

This Technitip is for a small very portable kit of keys and service kits. As you can see in photo three, it is a Plano plastic fishing tackle box. I have modified it to accommodate 50 key hooks and six small pin kits. The box is double sided, which allows 25 hooks on a side, in this configuration.



3. A fishing tackle box used as a portable key kit.

If the pin kits are not used, the box will accommodate 96 key hooks. The center divider has been cut from the box and replaced with a plywood panel, which holds the key hooks. When the covers are closed, the keys can not get off the hooks. The amber clear box allows you to see the keys without opening the cover, when you are searching for a particular blank. One or two of these boxes makes a good portable key assortment for most small jobs.

Casimier Cherry  
Michigan

### ESP Pickset Winner

My tip is very simple. I just cut 3/4" long pieces of rubber auto windshield wiper tubing and push them onto the key hooks on the board in my vehicle.

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This has successfully kept my keys from falling off in transit. The tubing is 1/8" nominal size, 7/64" actual size which is 1/64" smaller and gives a tight fit on the hook. This tubing is available at most automotive supply stores.

Charles Hays  
New Jersey

#### E-Z Pull GM Wheel Puller Winner

This tip concerns the 1993-1/2 Infiniti G20, which has the linkage high in the door. One of the more popular tool manufacturers, requires the use of a reverse hook tool, to capture and move the horizontal linkage. I found this method somewhat difficult, as it requires threading the tool between the upper and lower linkage rods to engage the proper linkage, and open the door. I have devised an alternate method. I bought a 4-1/2' piece of 1/8" rod, and bent a 4" L at one end, to form a handle. The opposite end was bent to 45 degrees, 2" from the end, to form a hook. I then flattened the rod slightly, 1/2" above the 45 degree hook, and drilled a 1/16" hole to accept a 5 foot piece of 60 pound nylon fishing line. The fish line was tied, at the hole, to allow better control of the rod tip. To open the car, wedge the top right corner of the passenger door with a plastic wedge, to allow the rod to pass thru the weather stripping. Slip a piece of stiff celluloid strip thru the hole, to guide the rod thru the weather stripping without tearing it. By holding on to the string, I am able to guide the tip of the rod to the lock button on the door, and pull it towards the rear of the car which unlocks the door. This method will open many similar cars with horizontal door lock buttons and although lengthy to describe, it takes no more that one minute to perform. You may want to cover the painted surfaces, at the point where the tool is inserted, to prevent scratches or chips in the paint.

Larry Kanzer  
Pennsylvania

#### Fort Lock Display Board Winner

Sometimes it is necessary to drill into the top of a bible to unseat a jammed master wafer, driver, or crushed spring. This leaves a hole through which a replacement spring might possibly thread it's way. To prevent this, and before re-loading a new spring and driver, drop a .015"

top pin (master wafer) into the top chamber. Then load the driver spring and top pin. A touch of crazy glue, through the drilled hole will secure the .015" wafer in place, to complete the repair. This Technitip is much better than leaving the hole open.

Joseph Gerace  
Massachusetts

This Technitip concerns the solution to a problem with Adams Rite type latch locks. A local motel has several entry locks which allow the guests to use their room keys to enter. The locks are Adams Rite 4500 series

deadlatches, with a paddle or lever handle on the inside. A number of these locks were constantly becoming jammed, with the customers key being trapped in the outside cylinder. As the "on call" locksmith, this situation became a cause for embarrassment. To free the key from the cylinder, it was necessary to remove the cover plate, loosen the mortise cylinder retaining screw, and rotate the cylinder enough to allow the cam to rotate to the key pull position. After repeated cycles of the latch retraction, I was unable to get the cam into the position which I had found it.



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I finally reasoned that the guests were turning the key in the wrong direction. The 4500 latch locks will only retract the latch with left (counterclockwise) rotation of the key when mounted RHRB. The guests were rotating the key clockwise with enough torque to force the cylinder cam into a jam condition. It is not possible to limit the rotation of the drive cam and still be able to use the latch hold back function of this lock, so I painted an arrow on the door, above the cylinder, to illustrate the proper rotation of the key. (See illustration 4.) There have been no

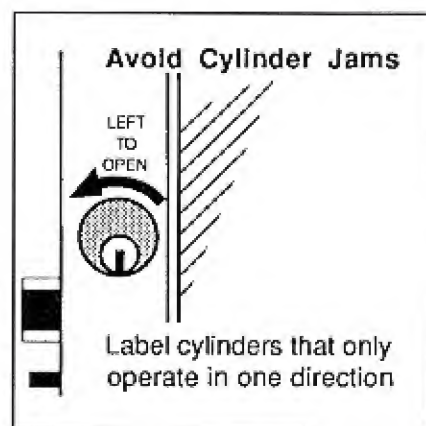


Illustration 4

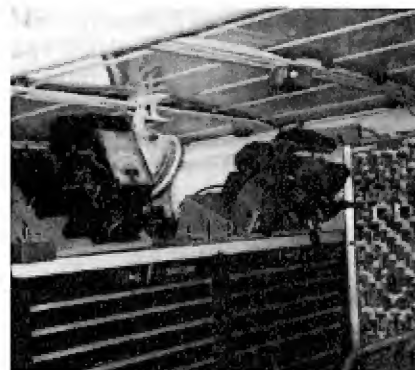
jams since that time. There have also been no evening calls from the same motel, so I'm not sure just how good a Technitip this really is.

Steve Glenberg  
Illinois

This Technitip concerns a five minute repair for a common problem with GM glove box locks. I recently had a problem with a GM glove box lock. The metal knob would spin freely, but would not unlatch the glove box latch. The metal knob was spinning on the plug. By inserting a blank key into the plug, I was able to unlatch and open the glove box. To repair the knob, disassemble the plug from the lock by depressing the retainer and removing the plug from the lock. Apply a few drops of six minute Epoxy to the staked rim of the metal knob, and rotate the knob to distribute the Epoxy between the plug and knob. Position the knob on the plug by inserting a blank key into the keyway. After the Epoxy has set, insert the plug into the lock using a working key. You will find that this Technitip also works well on GM and Chrysler ignition cylinders.

Todd Trebert  
Indiana

When we installed the new tool cabinets in our mini van, we found that they were too high to conveniently mount key machines on top of them, and still have room to operate the machines. We built angled riser blocks for the machines, as you see in photograph five, which tilted the machines. This way, you look right down on the top of them. We



5. Custom angled key machine mounting.

then bolted them securely to the tops of the cabinets. We liked this solution so well that we remounted the machines in the old van the same way.

Juanita Ramsey  
Texas



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# BITS & PIECES

## Informative Tidbits for the Security Industry

**K**wikset is adding a new twist to its Titan line hardware - a new five pin cylinder. While the six pin cylinder, standard with the Titan hardware, allows keying to a customer's existing Kwikset hardware, it is currently necessary to use the Titan keyblank for all the locks. With the addition of the five pin cylinder, the integration of Titan and Kwikset hardware can be accomplished in one of two ways: The locksets can be keyed by pinning the new six pin Titan hardware to match the existing Kwikset hardware and then duplicating the existing Kwikset keys onto new Titan blanks; or retrofitting the Titan hardware with the new Titan five pin cylinder and using the existing Kwikset keys.



by  
Tom Seroogy

Medeco has just released the dates for their Medeco Certification Classes:

- December 1-2, Medeco Security Locks, Salem, VA, Edie Dunn at 703-380-1789.
- December 11, Acme Wholesale, Houston, TX, Wayne Hilliard.
- January 8, 1994, H. Hoffman, Chicago, IL, Donna Hoffman at 708-456-4300.
- January 12-13, Medeco Security Locks, Salem, VA, Edie Dunn at 703-380-1789.
- January 15, American Lock & Supply, Atlanta, GA, A.J. Gibson at 404-458-1899.
- January 22, Williams Key, St. Louis, MO, Gary Andrews at 314-231-2411.

For more information and other classes sponsored by Medeco, contact Edie Dunn at 703-380-1789.

Federal Lock company is introducing a new feature to their 500 series 2" solid brass body padlock and

their 600 series 2-1/2" solid steel body padlock. To be released in February, these series padlocks will be offered with the Lori 1539 replacement cylinder, allowing keying into existing key and masterkey systems. Keyways will include the Schlage C, Weiser, Yale, Arrow and Corbin 60.

The alarm industry is apparently ruffling feathers in New Jersey. William Timmann, CML, Legislative Chairman for the Master Locksmith's Association of New Jersey just sent notice that the New Jersey Burglar and Fire Alarm Association has recently introduced legislation that restricts locksmiths from installing access controls, electric strikes, exit alarm devices, magnetic locks and other electrically activated devices.

While he states that there is no obligation to join, Timmann urges the locksmiths of New Jersey to support the efforts of local associations in fighting the alarm bill and working towards the passage of a Locksmith Licensing Bill written by locksmiths for locksmiths.

**A**ssociations involved include: Master Locksmith Association of New Jersey, Morristown, NJ, 201-538-2737; Greater Philadelphia Locksmiths Association, National Park, NJ, 609-665-3386; New Jersey Locksmiths Association, Piscataway, NJ, 908-363-3939; North Jersey Master Locksmiths Association, Bergenfield, NJ, 201-391-1177; Institutional Locksmiths Association, Cherry Hill, NJ, 609-665-5541; and South Jersey Locksmiths Association, Lindenwold, NJ, 609-435-8158.

Illinois locksmiths just lost a battle over a similar law in their state, where Senate Bill 412, also sponsored by the alarm industry, passed virtually unopposed. Illinois locksmiths are also looking at introducing their own Locksmith Licensing bill. To gain support and strength in the writing and passing of a bill, the Allied

Locksmiths for Illinois has been formed. This group is a coalition of Illinois locksmith associations and locksmiths from Wisconsin, Illinois and Indiana. For more information contact John Greenan, Legislative Chairman of the Greater Chicago Locksmith's Association and ALOA legislative board member, at 312-486-2030 or fax 312-486-4268.

**T**his procedure has limited application and is not recommended unless absolutely necessary. However, should you be left on a job without the right value VATS key, the following procedure will allow a customer to continually restart their vehicle without the use of a VATS key.

If the VATS value is not known, use an Interrogator or other VATS device and follow standard procedures for finding the correct VATS value for that vehicle.

Once the correct value is determined, or if the value is already known, insert a mechanical key into the ignition. Attach the Interrogator to the key, select the correct VATS value for that vehicle and start it.

With the car running, remove the Interrogator from the mechanical key. Wait two or three minutes and the security light will display on the dash. Turn the car off.

From this point on, any mechanical key, regardless of resistance, will start the vehicle. The customer can now restart the vehicle until a key with the correct VATS value can be obtained.

To reset the VATS system, simply start the vehicle using a key with the correct VATS value. (NOTE: This procedure has been tested on a limited number of VATS vehicles with success. Should you need to attempt it, let me know what model vehicle it was attempted on and whether it was successful.)

Continued on page 102





by  
**Dale Libby**

## THE STRONG ARM MINI-RIG

*"Despite its size it gives maximum performance for a hard plate drilling apparatus."*

**B**ob Volosining from Strong Arm, the makers of the Strong Arm Carbide safe drill bits, is distributing a Mini-Rig used for penetrating safe hard plate.

I have used this mini-rig a couple of times with perfect results. It is called a "mini-rig" because of its small size and light weight (about three pounds). Despite its size it gives maximum performance for a hard plate drilling apparatus.

This device (about \$325.00) delivers top performance in straight drilling and positioning and precision depth drilling. It also incorporates a couple of features, like the quick release quality that makes it easy and fast to use. Let us do a typical safe penetration. The prescience of hardplate is not necessary to use this Canadian made appliance.

The first step with any safe opening is to decide where to drill after manipulation has failed, or in case of a burglary attempt, drilling is 'de rigueur'. If you are front drilling, then a template of the safe lock is invaluable, otherwise precise

measurements must be used. (See photograph 1.)

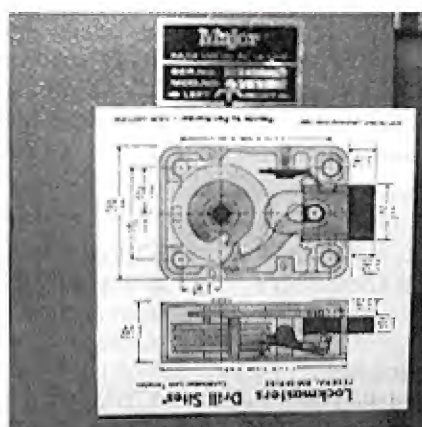
The beauty of this tool is that side

positioning can also be used when drilling to avoid glass plates or other nastiness. Side drilling is most needed on safes or money chests that

incorporate offensive devices and plates on the front door. Many times the sides of containers are not protected and this is the 'easy' way, so to speak.

As you know, when drilling through the side of a safe or chest, the slightest angle 'off' the true angle may result in being 1" or more out of alignment with the point you are aiming for. If you are trying to avoid a glass plate or hit the bolt of a combination or key lock, this will prove to be calamitous at best.

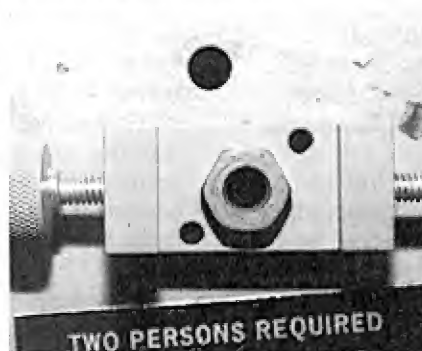
After locating the position to drill, you have two options to use in attaching the base plate to the door of the safe of money chest. Option 1: Drill a hole for a 1/2"x13 bolt, and thread the hole. (See photograph 2.) This works well in solid metal doors and on the side of money chests. The size hole to drill is approximately 27/64". The hole only needs to be tapped 5/16" deep. The tool comes with a hardened 1/2" bolt with a 5/16" hole in it to accommodate



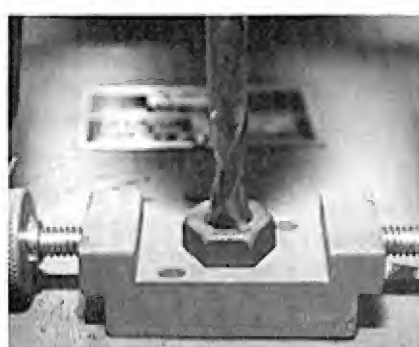
1. Templating the door of the safe to determine the precise location to drill the mounting hole for the "Mini-Rig."



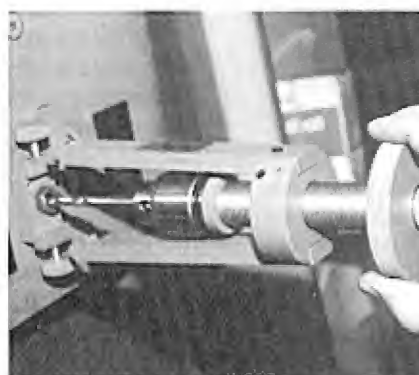
2. Drill and tap the mounting hole to accept the 1/2" x 13 bolt.



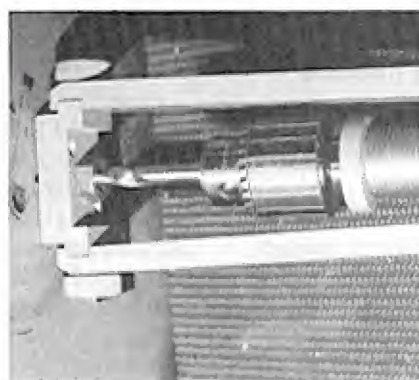
3. The baseplate is attached to the front of the safe using the large 1/2" x 13 bolt with the center drilled hole.



4. Close up of the baseplate, thumb screws and tower logs. This device is easy to attach and remove for viewing your progress.



5. Pressure is applied by turning the large wheel at the top of the tower, feeding the drill and chuck in a precise motion downward.



6. The drill attached and ready to go.



the hardplate drills.

Option 2: If you are using this tool on a safe that has a sheet steel body casing, then tapping is not feasible. The base plate is equipped with two holes diametrically opposed. Self tapping sheet metal screws are also included for this eventuality.

After attaching the base plate with the special 1/2" bolt (see photograph 3) or two sheet metal screws, the rig tower is ready to be attached to the base plate. This is accomplished by unscrewing the base plate thumb screws. The two movable arms of the tower are then positioned under the ledge of the base plate. The two screws are tightened and drilling can commence forthwith. (See photograph 4.)

I use a Hornet Drill, but any quality hand drill motor can be attached to the triangular end of the drill spindle. Pressure is applied by turning the large hand wheel in a clockwise direction. This is very easy and simple to do. (See photograph 5.)

The feature that I like about this tool is that you do not have to back out the drill before removing the tool to check for progress or to measure the depth of the drilled hole. All that has to be done is to loosen the screws on the base plate, spread the legs of the tower apart and remove the drill and tower from the base plate. (See photograph 6.)

You can now vacuum out the hole and scope the position of the aperture. If you are through the hardplate, then you can drill with a regular drill through the baseplate bolt. If you have to continue to drill hardplate, just re-attach the tower and drill. There is no wasted time in lowering or raising the spindle and chuck as exist in other devices of this ilk.

The biggest advantage of this drill rig over free standing hardplate drill rigs is the accuracy of drilling, combined with speed of removal and reattaching the unit to the door.


An added benefit is the repair of the door. Since the drilled 1/2" is under the dial ring, the repair is invisible. I used this unit successfully on a "Subway" in the floor round door safe. After tapping the entry hole for 1/2", I drilled to the hardplate. I then used a 1/4" drill bit to penetrate the hardplate and scope the non-

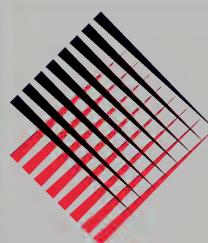
functioning lock. I had to drill for another relocker that the owner had activated by repeatedly dropping the safe on the floor. (Interesting safe for another article!)

The repair was beautiful. I dropped 5/16" ball bearings into the holes above the hardplate and tack welded them in place. I then used a half inch hardened bolt in the threaded holes with red Loc-Tite. I then cut off the bolts flush with the face of the safe door with my flexible cut off/grinding wheel (another article). The repair was almost invisible, and the hard ball

bearings were twice as thick as the original hardplate.

A few adaptations were made to the mounting of the side and bottom working lock (really) and the job was done. The tool worked flawlessly in a close location, and when you are done, just put the mini-rig in one pocket and your money in the other. OPEN AND PROSPER!

For more information contact: For U.S., Strong Arm Security, Inc., (415) 952-7710. For Canada, Access Safe and Supply, Ltd., (800) 268-9033. 



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## TO SERVICE OR REPLACE

*"Service parts + tools + manuals + training = service. If any portion of this formula is missing you cannot service that device."*

The author is a manager at B & S.

Over the past several years I have read articles and listened to discussions regarding the serviceability of one lock or another. It seems there are different ideas on just exactly what the term serviceable really means. Briggs & Stratton Corporation has built its reputation on service and I would like to share with you our view of this term.

I can say in all honesty that automatic transmissions are more serviceable than many manufacturer's automotive locks.

Four things must be present before service can happen on any device, be it an engine, a watch or in this case a lock. Service parts + tools + manuals + training = service. If any portion of this formula is missing you cannot service that device.

**SERVICE PARTS:** Replacement parts of equal to, or better than, original quality must be available and in the locksmith's possession. Anything less than this, such as reusing old parts, does not qualify as a quality repair. Would you replace the brake shoes on your car with used ones? (Let's hope not!)

**TOOLS:** Many repairs require special tools. Torque wrenches, piston ring expanders, and plastic gauges are all necessary in engine work. In some cases special tools are required to service locks. Without these tools you can spend hours doing jobs which should require only minutes. And the quality of your work will not be professional. Would you replace the lug nuts on your wheel with a big pair of pliers? (Let's hope not!)

**MANUALS:** Most mechanical devices have a set of specifications which its components must meet. These specifications are listed in a service manual or specifications book. If it is unreasonable to expect a service person to be able to assemble a component in the field and hold these specifications, the manufacturer will supply replacement parts as a preassembled set. Any deviation from this, such as re-peening, gluing or squeezing parts together is not professional. Service procedures are written to help you do a quality repair. Use them whenever possible. Would you take the transmission apart without instructions? (Let's hope not!)

**TRAINING:** Training is the place where all aspects of service come together. It is the opportunity to use the replacement parts and, specialized tooling as instructed in the manuals and work through any problems on questions as they arise. This is the place where special techniques or "tricks of the trade" can be developed and/or shared. It is the last and most vital part of service. Would you try to fly a helicopter without some type of training? (Let's hope not!)

Let's look at the 1991 Chevrolet J-car (Cavalier) as an example and ask ourselves, "Serviceable or not

serviceable?" First the door locks:

A. Replacement parts? Yes. Lock service packages are available. B&S (607868).

B. Tools? Yes. This lock requires no special tools other than those already in your tool box.

C. Manuals? Yes. Replacement instructions are available in most all automotive service books including the MS1975 B&S service manual.

D. Training? Yes. Most all associations offer basic automotive locksmith courses along with a number of fine educational facilities which teach locksmithing. Magazines such as this one are also an excellent source for service instructions on these types of locks.

(Service parts + tools + manuals + training = service.)

**CONCLUSION:** Yes, the door locks are serviceable.

Now let's look at the ignition lock:

A. Replacement parts? No. No tumblers, springs, pins or other parts are available for this lock. (Reusing old parts is not considered servicing).

B. Tools? No. The tools used to assemble this lock are not available outside the assembly plant. If you have ever had one apart, you would know what I mean.

C. Manuals? No. No instructions are available to help you assemble or repair this unit.

D. Training? No. Nothing in the way of training is available from AlphaTech or G.M. on the servicing of this lock. Anything supplied by someone other than the designer or manufacturer is just someone else's best guess at what they think should happen.

**BOTTOM LINE:** No, this lock is not serviceable. It should be replaced as a unit only.

There are a number of situations that a locksmith gets into which will call for them to try to service what is unserviceable. Whenever possible, service only what is serviceable and replace the others as a set. Like the AlphaTech lock we used in the previous example.



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# THRU THE KEYHOLE



*A Peek at  
Movers & Shakers  
in the Industry*

**ATTENTION MANUFACTURERS  
AND DISTRIBUTORS:** Would you  
like your company and products to  
be profiled in *Thru The Keyhole*?  
Please call Managing Editor Tom  
Seroogy at (708) 837-2044.

## **Gil-Ray Tools Offers Cutters and Sharpening**

**F**orty-eight years ago, Gil-Ray Tools  
was founded by Raymond Deuel  
as a sharpening service for dull  
locksmith key machine cutter wheels.  
Since that time Gil-Ray Tools has  
become best known for their precision  
sharpening service and their line of



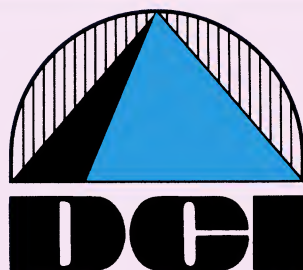
*Our 48th year*

quality replacement cutters. Gil-Ray  
cutters are manufactured at their Bay  
City, Michigan facility. Many are  
found as OEM equipment on popular

code machines.

Gil-Ray Tools was incorporated in  
1980 after Rays' son, David Deuel took  
over the firm. David is a  
manufacturing engineer and a  
journeyman tool maker. He also offers  
his services as a consultant for new  
cutter designs.

**G**il-Ray operates a nationwide mail-  
in sharpening service. They also  
service Canada, England, Germany,  
Mexico, Thailand, and many other  
countries. They sharpen and repair all  
types and styles of dull key machine  
cutters including: code cutters,  
duplicating cutters, flat slotters, file



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cutters, end mills and side milling slotters. They also sharpen worn drill bits, hole saws and multi-spur bits. All materials are sharpened at Gil-Ray including high speed steel, tool steel and solid carbide. All dull wheels are restored to blueprint specifications and can be resharpened many times.

**G**il-Ray is a family business, the principle officers are all related. When someone desires to do business with Gil-Ray the first person they will talk to is customer service manager Laurie Gatza. Laurie is David Deuels' sister, and she has literally grown up in the shop, says Dave. She has over 27 years experience at Gil-Ray and has gained much knowledge in cutter sharpening and manufacturing. If she can't personally help someone on the spot with a cutter problem, then she will find the answer or turn them over to someone that can. Other officers at Gil-Ray include Debbie Deuel, vice-president (and Dave's wife), Tammy LaGalo, Laurie's daughter, and James Gibas- Journeyman Toolmaker, (Dave & Lauries' uncle). the owners would like to say than when you do business with Gil-Ray Tools you are one of the family.

**O**ne of Gil-Rays' special services is a repair service for cutters that are damaged by others' attempts at sharpening. Gil-Ray is able to restore most cutters that failed to perform correctly so that they can be used again. The cost is economical compared to the price of new wheels.

Another special service that Gil-Ray performs is the alteration of code machine cutters for special key profiles. One example is a Federal Prison that uses a special key profile to open their cells. Their key cutter used an angle and pin seat that no common cutter could generate. Gil-Ray altered a standard code cutter to the wider angle and pin seat. All they sent in to work with was one key blank. The client was very pleased and a cutter was created for a very economical cost.

Gil-Ray manufacturers and sells new replacement cutters for most key machines. Selling direct to locksmiths, they are able to eliminate "middle man" markups. They also are distributors for many popular key

machines. Gil-Ray Tools is open for business Monday through Friday from 9:00 AM- 5:00 PM Eastern Time. A free catalog is available. For information about cutter sharpening write Gil-Ray Tools Inc., P.O. Box 801, Bay City, MI 48707, or telephone (517) 892-6870.

### **Who Or What Is Turn 10?**

That's not an easy question to answer. Turn 10 is an unusual company, starting with its unusual name.



The Who begins with John Miller, who stared Turn 10 over twenty years ago. Considering the language of the era, Miller might have called his company "Honest John's Wholesale."

What does the name "Turn 10" really mean? Miller explains: "The name is based on the old principle,



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show what you sell and for every product on the floor we will back-you-up with our inventory of the full line and you'll 'turn' ten products each year....out the door sold.

Turn 10 wholesales quality products-nation wide—Gardall, FireKing, Meilink, Victor—but it also provides a unique bundle of services that can help the dealers. For example, most dealers use the 800 phone number.... 800-848-9790 for orders and questions.

**T**he dealers who do business with Turn 10 answer the Who or What question in their own language.

Bob McCown of Fink Safe and Lock Co. in Chicago: "We get great service from Turn 10. As a safe dealer, it is great to place an order knowing that it will be delivered quickly. That is why we, as a dealer, like to deal with Turn 10. They respond."

But fast service is only part of how the name Turn 10 fits the concept of the business. A locksmith, for example, might call the 800 number from a customer's business for product selection and price. Then there are product brochures for dealers to give to their customers, plus window banners and racks to display the product.

Another Turn 10 service that fits the name is a little more subtle. All of Turn 10's employees have had customer service training and are totally responsible for completing each order they get so the dealer can talk to one person. That person can also provide the sales aides, assistance on parts, and information on UL labels and uses of the products.

Like any other business, Turn 10 does its share of trade advertising, and you can usually spot a representative at trade shows. Many dealers, nationwide, have received Turn 10's Stock and Price Guide.

So who or what is Turn 10? It's an unusual name for a family owned and operated business that's been around for a couple of decades, and it's grown into the nation's only wholesaler specializing in fire-files, fire-rated safes and money safes, but it's mainly a distributor that has focused on helping dealers help their customers.

### **AccuMark**

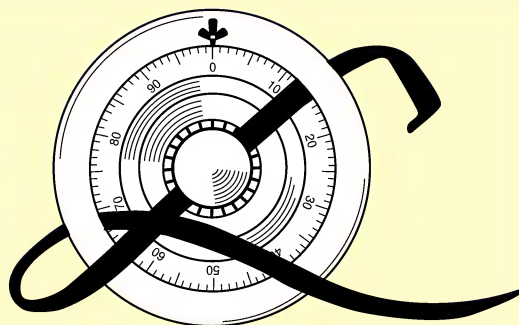
If you are a locksmith who owns your own company, no matter if that company is only one mobile unit, or whether that company operates 50 service vehicles and fifteen shop locations, you all have some common thoughts. First and foremost, how do I get more customers? And secondly, how do I guarantee that my customer will remember my name and phone number?

**W**ell, if you are like most other locksmith companies, you probably invested in some advertising mediums such as business cards or Rolodex cards with your company name and phone number on them.



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Maybe you even bought some pens to give away, or how about those stickers with your name and number that you place on the door that you service. You have probably spent hundreds of dollars on these types of advertising already. The problem with these is that they are advertising already. The problem with these is that they are dispensable. Cards are used as scratch paper then discarded, stickers are peeled off by the general public or maybe even by your competitors. Pens are used until they are lost or forgotten. Then besides all this, if the person you dealt with originally has left the company, he probably took all these with him, and again the store goes to the yellow pages to play Lotto with your company against all the others.

**T**here is a product, or maybe you'd call it a tool, that can help you with this dilemma. Security Corners of Mansfield, Texas has invented a stamping fixture that allows you to imprint your company name and phone number into the face of each and every mortise cylinder that you install; and with the same tool, to imprint your name and phone number into the head of each key you duplicate. This tool is called the AccuMark 1™. It gives your company one more weapon in the arsenal against the competitor.

If you are currently buying custom keyblanks with a company name, phone number or logo stamped into them, you can now stamp your own. The money savings is one consideration, while the advantage of being able to use all the keys you have on the board and not having to wait each time you need a different keyblank for the ordering process is another. With an AccuMark 1™ mounted in your service vehicle, or on the bench at the shop you are able to put into the hand of your customer an advertising medium that won't be thrown away and will be seen each time it is used. This type of advertising has proved itself over and over again.

The AccuMark 1™ has taken this one step farther. this is the only tool that allows you to not only stamp your keys, but, with the same tool, and

within only a few seconds, to stamp the face of each mortise cylinder you install with your name company name and phone number or custom logo that is on you keys. This gives you a double whammy. The customer will see your company name and phone number each time they use their keys to lock or unlock their door, and will see your name in the lock they are using that key on!! This will guarantee you that your customer will see your name at least twice a day!

The AccuMark 1™ is designed to hold stamps made by several of the different manufacturers of custom stamps. If your company has invested in a hand held stamp, you may be able to use this same stamp and just require the fixture. However, if you don't already own a custom made stamp, Security Corners can provide both the AccuMark 1™ fixture, and a custom made stamp with your company name, phone number, custom logo, or anything else you may want it to say for a very competitive price. Security Corners also can provide just the custom stamp, if you wish to purchase only the stamp. Each stamp is of the highest quality tool steel and will last thousands of stampings. The cost of this tool is less than one might expect for a tool of this quality. It is solid steel, takes up less than four inches on your workbench, and is unconditionally guaranteed for two full years.

For further information, call Rick Segerstrom, owner of Security Corners, at 800-683-0696. A brochure is available just for the asking.

## Marlee Electronics

**O**ne of the least complicated, easiest types of electronic access control to install is telephone entry. Telephone entry systems provide a simple, professional method of providing entry control most often in apartment buildings, but also in office buildings, gated communications and parking garages. Typically, the occupant of an apartment building has a key to allow him to enter the building, but this does not address

how visitors are provided access. Marlee Electronics designed one of the first telephone entry systems over twenty years ago as a replacement for the hard-wired intercom systems that had previously filled that requirement. The simplicity of these systems is due to the fact that they are wired into a single phone line - there is no need to run wires to each unit in a building.

These systems act as "auto-dialers" by making an actual phone call to the occupant. They operate very simply: A visitor looks at a directory, finds the



Marlee Electronics PM4 telephone entry system. Photo shows both "hands-free" and "hand-set" versions.



Marlee Electronics Advantage telephone entry system. Photo shows both "hands-free" and "hand-set" version.

number assigned to the occupant he wants to visit and dials that number into the system. After the occupant answers the call if he wants to grant the visitor access to the building he enters a single digit on his telephone. This activates a relay in the unit which in turn activates the door strike, allowing the visitor to enter.

Today's telephone entry systems are very simple to install and use. Using Marlee's system as an example, the installation involves only eight

*Continued on page 82*



**Continued from page 80**

wires; two to a 12 VAC transformer (included) which plugs into a standard wall outlet; two to a standard USOC RJ-11C phone jack via a connector cable with standard jack connectors; two to the door strike; and two for the strike power.

Most new installations are of "hands-free" type units. These "speaker phone" systems are much more vandal-resistant because there is no handset to tamper with or tear off the unit. It is important to remember that there are some applications in

which handset models still provide a better solution. Primarily those applications are where the telephone entry unit is in a very noisy environment, where even the best speaker-phones would be overwhelmed by the environmental noise. The other application where a handset unit is often preferred is in a retirement community setting where many older people are more comfortable holding a handset.

There are two types of information that need to be programmed into

these units: the occupant data (their phone numbers and directory code numbers) and the system parameters (things like relay polarities, door strike times etc.) Both are programmed via the touch-tone keypad on the unit using simple numerical code commands. With Marlee's systems, they can also be remotely programmed from a touch-tone phone. The first, programming the occupant's telephone numbers and codes, is usually done by the building or site manager. The second, programming the system parameters, is done by the installer, also using simple numerical code commands, but many of the parameters will probably remain in the factory set default mode. For example, the door strike timeout on the Marlee units is factory preset at 5 seconds, but if you want to increase that because of the distance between the door and the telephone entry unit, you enter a programming command into the keypad.

Most telephone entry systems provide you with the option of using PIN numbers for access. Again, using Marlee as an example, your customer can have the option of assigning each of the occupants a 4-digit code which they can enter into the unit to allow themselves access. Obviously this can reduce the security factor, because an occupant can tell other people their code, and that information can be passed on. It isn't difficult to change these codes, but it can be difficult for the building manager to know which codes need to be removed from the system. However, limited usage of this feature can be very helpful to the building manager. Often the site manager will have a code programmed in for their use only as a convenience. Another use of this feature which can benefit the building manager is the ability to give work crews a code which they can use to access the building to do a job, but which the building manager can easily remove (at the site, or from any touch-tone phone) once the job is completed.

If you are interested in learning more about telephone entry systems, please feel free to call Marlee Electronics at 800-874-8036. We will be happy to send you product literature,



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specs and detailed installation information.

## Intercom And The Locksmith

Aiphone Communications Systems is the world's largest manufacturer of intercommunications products. In our line of over 35 types of intercom systems, there are a number designed for home or business entry security and access control.

While locksmiths have always been involved in security, they have largely concentrated on installation and repair of the mechanical devices with which they are most comfortable, like locks and deadbolts.

Some larger locksmith firms have found that offering an intercom system as part of their sales package has increased their sales and profitability. The majority of smaller locksmiths have simply passed this opportunity by staying within their product "comfort zone". The reason seems to be a lack of understanding of what is available, and a reluctance to pursue a market that they feel may be out of their sales sphere.

Today, however, intercoms are not just a convenient means of communicating, but are increasingly recognized as an important security product, just as any mechanical device, a lock, a deadbolt, or chain lock, are physical deterrents to unauthorized entry.

We have found that locksmiths who are willing to offer low voltage access control equipment, such as intercoms, sell and install basic systems that complement the normal installation—an added feature to a lock or similar device. Simplicity and ease of installation are essential.

For example, take a typical residential request for a new or replacement lockset, or a deadbolt. The majority of these homes already have a door bell or chime. These devices add security, but leave a key question unanswered: "Who's at the door when the doorbell rings?"


A basic two-station intercom or a video intercom can answer the question. The resident can talk to whomever is outside, identify and decide whether or not to open the door. Think of all the latchkey children or elderly home alone. An intercom system allows them the security to know who's there before opening the door.

The locksmith literally already has "his foot in the door". Any two station intercom is a complement to the

mechanical security devices he is there to install.

Installing of such a system can be as easy as a new lock. The door bell has two wires—these same two wires can be used for the intercom.

Aiphone intercom and videocom systems are available through Aiphone distributors.

For more information contact your nearest Aiphone distributor. 

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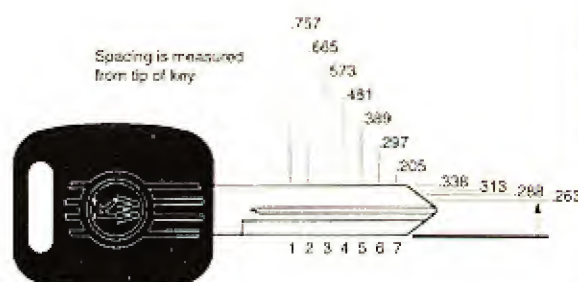
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# KEY CODES

**Kenworth 1021Y  
G101-G598**



Spacing and Depths  
using Universal  
Micrometer Card #58.

Spacing	Depth
1 .193	.338
2 .285	.313
3 .377	.288
4 .469	.263
5 .561	
6 .653	
7 .745	

## HPC 1200CM

Continental Code Card - XF207 (Used for Saturn.)

Cutter - CW1011

Stop - Red Tip Stop (Ford 5-Cut)

## Framon

Cut start .144

Cut to cut - .092, Spacing Block #3

Cutter - FC8445

Stop - Ford 5-Cut Clip

## Curtis

Cam -

Carriage -

## KEY BLANKS

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Silca

Curtis

Ilco

EZ

Jet



Key Profile

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# Kenworth 1021Y

## G101-G598

KEYCODE I	MASTERCODE I	IGNITION CODE I	DOORCODE
G101	211212	11212	21121
G102	311213	11213	31121
G103	211221	11221	21122
G104	311223	11223	31122
G105	311224	11224	31122
G106	211231	11231	21123
G107	211232	11232	21123
G108	311233	11233	31123
G109	311234	11234	31123
G110	211242	11242	21124
G111	311243	11243	31124
G112	311244	11244	31124
G113	211312	11312	21131
G114	311313	11313	31131
G115	211321	11321	21132
G116	311322	11322	31132
G117	211323	11323	21132
G118	211324	11324	21132
G119	311331	11331	31133
G120	211332	11332	21133
G121	311334	11334	31133
G122	211342	11342	21134
G123	311343	11343	31134
G124	311344	11344	31134
G125	212112	12112	21211
G126	312113	12113	31211
G127	212121	12121	21212
G128	312122	12122	31212
G129	212123	12123	21212
G130	312124	12124	31212
G131	212131	12131	21213
G132	112132	12132	11213
G133	212133	12133	21213
G134	212134	12134	21213
G135	212211	12211	21221
G136	312212	12212	31221
G137	212213	12213	21221
G138	112231	12231	11223
G139	312232	12232	31223
G140	312233	12233	31223
G141	312234	12234	31223
G142	112242	12242	11224
G143	212243	12243	21224
G144	312244	12244	31224
G145	212311	12311	21231



# Kenworth 1021Y

## G101-G598

KEYCODE I	MASTERCODE I	IGNITION CODE I	DOORCODE
G146	112312	12312	11231
G147	112313	12313	11231
G148	112321	12321	11232
G149	312322	12322	31232
G150	212323	12323	21232
G151	212324	12324	21232
G152	112331	12331	11233
G153	212332	12332	21233
G154	312334	12334	31233
G155	112342	12342	11234
G156	212343	12343	21234
G157	312344	12344	31234
G158	112421	12421	11242
G159	112422	12422	11242
G160	112423	12423	11242
G161	112424	12424	11242
G162	112431	12431	11243
G163	112432	12432	11243
G164	212433	12433	21243
G165	212434	12434	21243



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# Kenworth 1021Y

## G101-G598

KEYCODE I	MASTERCODE I	IGNITION CODE I	DOORCODE
G166	112442	12442	11244
G167	212443	12443	21244
G168	213112	13112	21311
G169	213113	13113	21311
G170	213121	13121	21312
G171	113122	13122	11312
G172	113123	13123	11312
G173	113124	13124	11312
G174	213131	13131	21313
G175	113132	13132	11313
G176	113133	13133	11313
G177	113134	13134	11313
G178	213211	13211	21321
G179	113212	13212	11321
G180	113213	13213	11321
G181	113221	13221	11322
G182	213223	13223	21322
G183	213224	13224	21322
G184	113231	13231	11323
G185	113232	13232	11323
G186	213233	13233	21323
G187	213234	13234	21323
G188	113242	13242	11324
G189	113243	13243	11324
G190	213244	13244	21324
G191	213311	13311	21331
G192	113312	13312	11331
G193	113313	13313	11331
G194	113321	13321	11332
G195	213322	13322	21332
G196	213323	13323	21332
G197	213324	13324	21332
G198	113342	13342	11334
G199	213343	13343	21334
G200	313344	13344	31334
G201	113421	13421	11342
G202	113422	13422	11342
G203	113423	13423	11342
G204	113424	13424	11342
G205	113431	13431	11343
G206	113432	13432	11343
G207	213433	13433	21343
G208	213434	13434	21343
G209	113442	13442	11344
G210	213443	13443	21344
G211	221121	21121	22112



## Kenworth 1021Y G101-G598

KEYCODE I	MASTERCODE I	IGNITION CODE I	DOORCODE
G212	321122	21122	32112
G213	321123	21123	32112
G214	321124	21124	32112
G215	221131	21131	22113
G216	121132	21132	12113
G217	321133	21133	32113
G218	321134	21134	32113
G219	221211	21211	22121
G220	121212	21212	12121
G221	121213	21213	12121
G222	121221	21221	12122
G223	321223	21223	32122
G224	321224	21224	32122
G225	121231	21231	12123
G226	121232	21232	12123
G227	321233	21233	32123
G228	321234	21234	32123
G229	121242	21242	12124
G230	121243	21243	12124
G231	321244	21244	32124
G232	221311	21311	22131
G233	121312	21312	12131



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# Kenworth 1021Y

## G101-G598

KEYCODE I	MASTERCODE I	IGNITION CODE I	DOORCODE
G234	121313	21313	12131
G235	121321	21321	12132
G236	121322	21322	12132
G237	121323	21323	12132
G238	121324	21324	12132
G239	121331	21331	12133
G240	121332	21332	12133
G241	321334	21334	32133
G242	121342	21342	12134
G243	121343	21343	12134
G244	321344	21344	32134
G245	322112	22112	32211
G246	322113	22113	32211
G247	122121	22121	12212
G248	322123	22123	32212
G249	322124	22124	32212
G250	122131	22131	12213
G251	122132	22132	12213
G252	322133	22133	32213
G253	322134	22134	32213
G254	122311	22311	12231
G255	122312	22312	12231
G256	122313	22313	12231
G257	122321	22321	12232
G258	322323	22323	32232
G259	322324	22324	32232
G260	122331	22331	i 2233
G261	322332	22332	32233
G262	422334	22334	42233
G263	122342	22342	12234
G264	322343	22343	32234
G265	422344	22344	42234
G266	122421	22421	12242
G267	122423	22423	12242
G268	122424	22424	12242
G269	122431	22431	12243
G270	122432	22432	12243
G271	322433	22433	32243
G272	322434	22434	32243
G273	122442	22442	12244
G274	322443	22443	32244
G275	123112	23112	12311
G276	123113	23113	12311
G277	123121	23121	12312
G278	123122	23122	12312
G279	123123	23123	12312
G280	123124	23124	12312





# Kenworth 1021Y

## G101-G598

KEYCODE I	MASTERCODE I	IGNITION CODE I	DOORCODE
G281	123131	23131	12313
G282	123132	23132	12313
G283	123133	23133	12313
G284	123134	23134	12313
G285	123211	23211	12321
G286	123212	23212	12321
G287	123213	23213	12321
G288	123221	23221	12322
G289	323223	23223	32322
G290	323224	23224	32322
G291	123231	23231	12323
G292	123232	23232	12323
G293	423233	23233	42323
G294	323234	23234	32323
G295	123242	23242	12324
G296	123243	23243	12324
G297	323244	23244	32324
G298	123311	23311	12331
G299	123312	23312	12331
G300	123313	23313	12331
G301	123321-	23321	12332
G302	323322	23322	32332
G303	423323	23323	42332
G304	323324	23324	32332
G305	123342	23342	12334
G306	423343	23343	42334
G307	423344	23344	42334
G308	123421	23421	12342
G309	123422	23422	12342
G310	123423	23423	12342
G311	123424	23424	12342
G312	123431	23431	12343
G313	123432	23432	12343
G314	423433	23433	42343
G315	323434	23434	32343
G316	123442	23442	12344
G317	323443	23443	32344
G318	124211	24211	12421
G319	124212	24212	12421
G320	124213	24213	12421
G321	124221	24221	12422
G322	124223	24223	12422
G323	124224	24224	12422
G324	124231	24231	12423
G325	124232	24232	12423





## Kenworth 1021Y G101-G598

KEYCODE I	MASTERCODE I	IGNITION CODE I	DOORCODE
G326	124233	24233	12423
G327	124234	24234	12423
G328	124242	24242	12424
G329	124243	24243	12424
G330	124244	24244	12424
G331	124311	24311	12431
G332	124312	24312	12431
G333	124313	24313	12431
G334	124321	24321	12432
G335	124322	24322	12432
G336	124323	24323	12432
G337	124324	24324	12432
G338	124331	24331	12433
G339	124332	24332	12433
G340	324334	24334	32433
G341	124342	24342	12434
G342	124343	24343	12434
G343	324344	24344	32434
G344	124421	24421	12442
G345	124422	24422	12442

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# Kenworth 1021Y

## G101-G598

KEYCODE I	MASTERCODE I	IGNITION CODE I	DOORCODE
G346	124423	24423	12442
G347	124424	24424	12442
G348	124431	24431	12443
G349	124432	24432	12443
G350	324433	24433	32443
G351	324434	24434	32443
G352	231121	31121	23112
G353	131122	31122	13112
G354	131123	31123	13112
G355	131124	31124	13112
G356	231131	31131	23113
G357	131132	31132	13113
G358	131133	31133	13113
G359	131134	31134	13113
G360	231211	31211	23121
G361	131212	31212	13121
G362	131213	31213	13121
G363	131221	31221	13122
G364	131223	31223	13122
G365	131224	31224	13122
G366	131231	31231	13123
G367	131232	31232	13123
G368	131233	31233	13123
G369	131234	31234	13123
G370	131242	31242	13124
G371	131243	31243	13124
G372	131244	31244	13124
G373	231311	31311	23131
G374	131312	31312	13131
G375	131313	31313	13131
G376	131321	31321	13132
G377	131322	31322	13132
G378	131323	31323	13132
G379	131324	31324	13132
G380	131331	31331	13133
G381	131332	31332	13133
G382	131334	31334	13133
G383	131342	31342	13134
G384	131343	31343	13134
G385	131344	31344	13134
G386	132112	32112	13211
G387	132113	32113	13211
G388	132121	32121	13212
G389	132122	32122	13212
G390	132123	32123	13212
G391	132124	32124	13212
G392	132131	32131	13213
G393	132132	32132	13213
G394	132133	32133	13213





# Kenworth 1021Y

## G101-G598

KEYCODE I	MASTERCODE I	IGNITION CODE I	DOORCODE
G395	132134	32134	13213
G396	132211	32211	13221
G397	132212	32212	13221
G398	132213	32213	13221
G399	132231	32231	13223
G400	132232	32232	13223
G401	432233	32233	43223
G402	432234	32234	43223
G403	132242	32242	13224
G404	132243	32243	13224
G405	432244	32244	43224
G406	132311	32311	13231
G407	132312	32312	13231
G408	132313	32313	13231
G409	132321	32321	13232
G410	132322	32322	13232
G411	132323	32323	13232
G412	132324	32324	13232
G413	132331	32331	13233
G414	132332	32332	13233
G415	432334	32334	43233
G416	132342	32342	13234
G417	132343	32343	13234
G418	432344	32344	43234
G419	132421	32421	13242
G420	132422	32422	13242
G421	132423	32423	13242
G422	132424	32424	13242
G423	132431	32431	13243
G424	132432	32432	13243
G425	132433	32433	13243
G426	132434	32434	13243
G427	132442	32442	13244
G428	132443	32443	13244
G429	133112	33112	13311
G430	133113	33113	13311
G431	133121	33121	13312
G432	133122	33122	13312
G433	133123	33123	13312
G434	133124	33124	13312
G435	133131	33131	13313
G436	133132	33132	13313
G437	133134	33134	13313
G438	133211	33211	13321
G439	133212	33212	13321
G440	133213	33213	13321





## Kenworth 1021Y G101-G598

KEYCODE I	MASTERCODE I	IGNITION CODE I	DOORCODE
G441	133221	33221	13322
G442	433223	33223	43322
G443	433224	33224	43322
G444	133231	33231	13323
G445	133232	33232	13323
G446	433234	33234	43323
G447	133242	33242	13324
G448	133243	33243	13324
G449	433244	33244	43324
G450	133421	33421	13342
G451	133422	33422	13342
G452	133423	33423	13342
G453	133424	33424	13342
G454	133431	33431	13343
G455	133432	33432	13343
G456	433434	33434	43343
G457	133442	33442	13344
G458	433443	33443	43344
G459	134211	34211	13421
G460	134212	34212	13421



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## G101-G598

KEYCODE I	MASTERCODE I	IGNITION CODE I	DOORCODE
G461	134213	34213	13421
G462	134221	34221	13422
G463	134223	34223	13422
G464	134224	34224	13422
G465	134231	34231	13423
G466	134232	34232	13423
G467	134233	34233	13423
G468	134234	34234	13423
G469	134242	34242	13424
G470	134243	34243	13424
G471	134244	34244	13424
G472	134311	34311	13431
G473	134312	34312	13431
G474	134313	34313	13431
G475	134321	34321	13432
G476	134322	34322	13432
G477	134323	34323	13432
G478	134324	34324	13432
G479	134331	34331	13433
G480	134332	34332	13433
G481	434334	34334	43433
G482	134342	34342	13434
G483	134343	34343	13434
G484	134421	34421	13442
G485	134422	34422	13442
G486	134423	34423	13442
G487	134424	34424	13442
G488	134431	34431	13443
G489	134432	34432	13443
G490	434433	34433	43443
G491	242112	42112	24211
G492	242113	42113	24211
G493	242121	42121	24212
G494	342122	42122	34212
G495	242123	42123	24212
G496	242124	42124	24212
G497	242131	42131	24213
G498	242132	42132	24213
G499	242133	42133	24213
G500	242134	42134	24213
G501	242211	42211	24221
G502	342212	42212	34221
G503	242213	42213	24221
G504	242231	42231	24223
G505	342232	42232	34223





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# Kenworth 1021Y

## G101-G598

KEYCODE I	MASTERCODE I	IGNITION CODE I	DOORCODE
G506	242233	42233	24223
G507	242234	42234	24223
G508	342242	42242	34224
G509	242243	42243	24224
G510	242244	42244	24224
G511	242311	42311	24231
G512	242312	42312	24231
G513	242313	42313	24231
G514	242321	42321	24232
G515	342322	42322	34232
G516	242323	42323	24232
G517	242324	42324	24232
G518	242331	42331	24233
G519	242332	42332	24233
G520	242334	42334	24233
G521	242342	42342	24234
G522	242343	42343	24234
G523	242344	42344	24234
G524	242421	42421	24242
G525	342422	42422	34242
G526	242423	42423	24242
G527	242424	42424	24242
G528	242431	42431	24243
G529	242432	42432	24243
G530	242433	42433	24243
G531	242434	42434	24243
G532	242442	42442	24244
G533	242443	42443	24244
G534	243112	43112	24311
G535	243113	43113	24311
G536	243121	43121	24312
G537	243122	43122	24312
G538	243123	43123	24312
G539	243124	43124	24312
G540	243131	43131	24313
G541	243132	43132	24313
G542	243133	43133	24313
G543	243134	43134	24313
G544	243211	43211	24321
G545	243212	43212	24321
G546	243213	43213	24321
G547	243221	43221	24322
G548	243223	43223	24322
G549	243224	43224	24322
G550	243231	43231	24323





# Kenworth 1021Y

## G101-G598

KEYCODE I	MASTERCODE I	IGNITION CODE I	DOORCODE
G551	243232	43232	24323
G552	243233	43233	24323
G553	243234	43234	24323
G554	243242	43242	24324
G555	243243	43243	24324
G556	243244	43244	24324
G557	243311	43311	24331
G558	243312	43312	24331
G559	243313	43313	24331
G560	243321	43321	24332
G561	243322	43322	24332
G562	243323	43323	24332
G563	243324	43324	24332
G564	243342	43342	24334
G565	243343	43343	24334
G566	243421	43421	24342
G567	243422	43422	24342
G568	243423	43423	24342
G569	243424	43424	24342
G570	243431	43431	24343
G571	243432	43432	24343
G572	243433	43433	24343
G573	243434	43434	24343
G574	243442	43442	24344
G575	243443	43443	24344
G576	244211	44211	24421
G577	244212	44212	24421
G578	244213	44213	24421
G579	244221	44221	24422
G580	244223	44223	24422
G581	244224	44224	24422
G582	244231	44231	24423
G583	244232	44232	24423
G584	244233	44233	24423
G585	244234	44234	24423
G586	244242	44242	24424
G587	244243	44243	24424
G588	244311	44311	24431
G589	244312	44312	24431
G590	244313	44313	24431
G591	244321	44321	24432
G592	244322	44322	24432
G593	244323	44323	24432
G594	244324	44324	24432
G595	244331	44331	24433
G596	244332	44332	24433
G597	244342	44342	24434
G598	244343	44343	24434



## THE LIGHTER SIDE

*Continued from page 58*

duplicate and the key she had presented as the original. Finally, I asked her if the original worked smoothly in the lock. 'It won't work at all,' she said. 'That's why I came in to get a new key. I just keep that old one for emergencies.'

"Sounds like she's one of those who gets lost in thought because it's such unfamiliar territory," Don said.

"Obviously, the woman didn't understand how keys work. I think she'll have a better grip on the situation, next time. I learned something important from the experience, too."

"What's that?"

"Be careful what you guarantee. Because we had assured her we'd either make the key work or refund her money, we were out two key blanks plus the time spent working from her faulty original. We should have asked more questions up front."

"That's food for thought."

"Well, you know what they say about that: a lot of people are either allergic, or on a hunger strike."

## BITS & PIECES

*Continued from page 73*

Trade Shows: The Texas Locksmiths Association Trade show, February 2-6, 1994, Houston, TX, Michelle McEntire at 409-297-2413.

1994 Southern Lock & Supply Company's Buyers Trade Show, March 13, 1994, Largo, FL, Ed Pageau at 813-541-5536 or 800-282-2837.

GM brought us VATS and MATS. Now Ford (Europe) and TIRIS Division of Texas Instruments (Bedford) brings us PATS or Passive Anti-Theft System. This system is currently being tested in Europe on the European Ford Mondeo.

The system incorporates a transceiver, located in the vehicle, and a transponder, located in the head of the key. As the mechanical key is turned to the "START" position, the PATS control module energizes the Transceiver module. Through an antenna located around the face of the ignition lock, the Transceiver sends a charge pulse to the transponder in the head of the key.

This pulse charges a tiny capacitor in the transponder allowing it to

retransmit its unique code back to the ignition antenna and back to the PATS control module. The code of the transponder must match the manufacturer programmed code of the module to allow the car to start.

Currently Australian Holden (General Motors) is also testing a specialized electronic ignition system using a key that contains a battery and electronics in the head. A contact on the inside edge of the key's head must make contact with a contact on the lock in order to operate.

As these vehicles are in the testing phase, a servicing network of dealers has not yet been established. However, it is anticipated that both GM and Ford will introduce these or similar systems to the United States in 1995.

Iico has just announced their acquisition of the Marlok company. Marlok produces holorith key-based electronic locking systems for both the hospitality market and the locksmith. These systems include the multi-door, centrally controlled Millennium and the stand-alone Solitaire.

For more information on Marlok systems call 708-513-1070.



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# SHOP TALK

## Helpful questions and answers

Shop Talk answers readers questions on any locksmith related topic. Only letters judged to be of general interest will be published. We regret that we cannot answer individual letters. Because of the volume of mail, only those questions answered in the magazine will receive answers. Send your questions to Shop Talk, **The National Locksmith**, 1533 Burgundy Parkway, Streamwood, IL 60107.

**Q:** I am laying out a masterkey system for an old school turned office building in my town. Because of the number of change keys and master keys needed for this building, I am going to use the standard progression format to design the system. The management wants a master key that fits everything and another master for the building engineer that fits all but a few doors.

*What's the easiest way of doing this?*

*Ed Littleston  
New Mexico.*

**A:** There are three ways to solve this problem, Ed, depending on the final building layout of your system and the structure of your masterkey system. One way is to give the management a higher level master than the engineer and then key all the doors that are not to be accessed by the engineer to the management master only. Because these doors are keyed to the management master only, they will not have separate change keys.

A second method is to assign the management a higher level master key than the engineer. Because the management key operates a larger master key group than the engineer's

key, the doors to be operated by management only can be keyed to a change key outside of the engineer's master key group and still within the management's master key group.

Finally, a specialty master, often referred to as the engineering master, can be created for the system. By doing this, however, you lose the total number of change keys in your system. To create a specialty master, a column of your Key Biting Array is designated for that new master only. This obviously means you lose that column for any other purpose, and cannot use the bittings in that column to create change keys.

Use one of the bittings in that column for your specialty master and include it in all the locks and doors that



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are to fit that master key. Key all locks and doors that are part of the system but are not to be operated by the specialty master to the change key and Top Master Key only.

Which method you use will depend a great deal on the needs of the customer and the layout of the building, but one of them should work for you.

**Q:** *One of my customers asked me to adjust their door closer so the door would not slam. I adjusted the closing and latch speeds but now the door does not latch. Even with the door closer disconnected from the door, the door does not latch unless it is closed firmly or slammed. The door and frame are in good shape. Where can I start?*

*Ted Williamson  
New Jersey.*

**A:** Before rendering any service, a diagnosis of the problem must first be done. Several door problems may be existent that prevent the door from closing smoothly. The most common is hinge bind. When a door is shut, it should rest easily against the door stop edge without springing open. If it does not, then chances are the hinge side of the door is hitting the frame before the latch side of the door seats against the

door stop edge. While there are many reasons and conditions that cause this problem, the cure is almost always shimming the hinges.

Other conditions that prevent the door from closing correctly include having the incorrect latch plate, an incorrectly mounted door closer, or having the door and jambs out-of-plane. Check for these problems as well. Once all problems have been corrected, the door should shut correctly using the correct size closer.


**Q:** *I was called out to a local car dealer to make keys for a 1990 Camaro. I remember reading something in The National Locksmith about the VATS systems on this year having a progressive delay. I got to the number five key and it started without extending the waiting time between the unsuccessful keys. How come?*

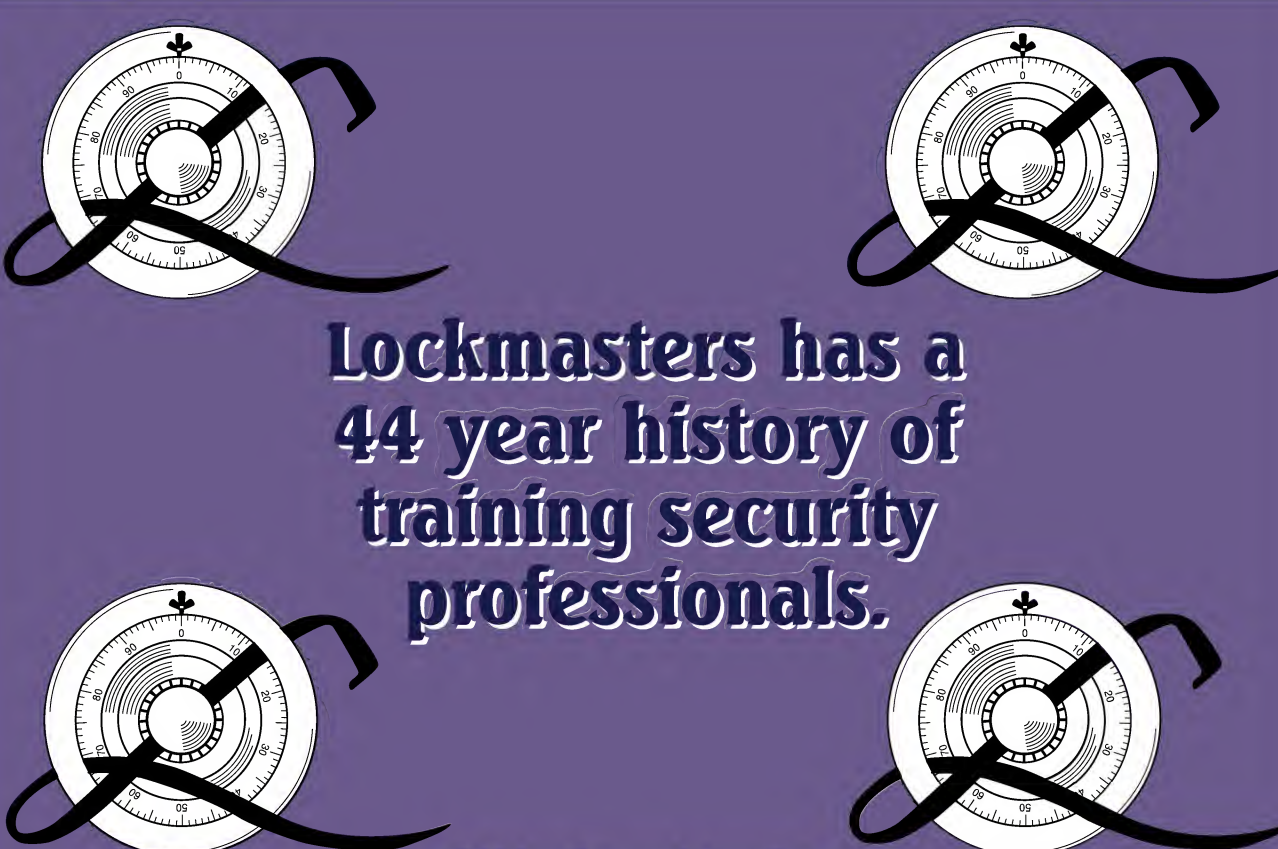
*Dale Youngquist  
Texas.*

**A:** The reference to the progressive delay on the General Motors VATS system is from the March 1993 Bits & Pieces section of *The National Locksmith*. According to confirmed information, the progressive delay is present on the 1990 Corvette models only.

We were first notified of this problem by Tom Mazzone of Mazzone Lock and Key in Streamwood, IL. Through Mazzone we were able to contact and confirm this change with Corvette Engineer, Gordon Killabrew (currently retired). According to Killabrew, this progressive delay affected the 1990 Corvette only. Because of the small number of cars it affected, this change was not initially entered into the service manuals or taught to the GM mechanics. Today, however, it is included in several GM classes regarding PASS/VATS and Corvette service.

To further corroborate this information, I went out to the field with Mazzone and worked on a 1990 Corvette. On our first attempt, we followed the standard four minute delay between each unsuccessful key. After working through all of the keys, we could not start the car. On the second attempt, we allowed a four minute delay after the first three unsuccessful keys, and a 12 minute delay thereafter. Using this method a key was found that started the car.

Killabrew was unable to confirm or deny that this system exists on other '90 GM models. To date, we have not encountered any model except Corvette. 



**Lockmasters has a  
44 year history of  
training security  
professionals.**

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# TEST DRIVE



*Taking Industry  
Products for a Spin  
Around the Block*

## TRESKAT'S AUTOMASTER

### PRODUCT:

Treskat  
AutoMaster,  
Version 1.1,  
Automotive  
Encyclopedia  
software, \$99.95.  
Annual updates  
\$24.95. Free Tech  
Support Hotline.  
Treskat USA, 725  
Adriane Park  
Circle, Kissimmee,  
Florida 34744,  
800-645-5657.



program presents  
the AutoMaster  
main menu. Here  
the locksmith  
chooses from  
several tasks;  
three search  
options, two print  
options and two  
supplementary  
options are  
available. The  
supplementary  
options include

version information, the last update  
made, and Treskat's technical support  
phone number (select 4) and screen  
color (select 6). To choose a function  
the user simply selects the menu item  
number or uses the arrow keys to scroll  
to and highlight the desired item and  
hits "ENTER."

The heart of the program, however,  
are the search options (select 1, 2, or 3).  
Selecting any one of these options opens  
a library of automotive information,  
featuring over 600 different vehicles  
including autos, trucks and motorcycles.  
Choosing a specific vehicle through the  
Encyclopedia Index (select 1) opens an  
index card file of pertinent information.  
Here the locksmith is given code series,  
code locations, keyblank information,

Curtis cam/carriage information, and  
opening tool selection and method. One  
of the nice features of the card index  
layout is the Special Notes card allowing  
the locksmith to record his own findings  
about each vehicle.

Choosing the Code Series Listing  
(select 3) from the menu displays a  
cataloging of code and key specifications  
listed by manufacturer. Selecting a code  
series opens a card displaying  
Impressioning Data: i.e. the application  
or manufacturer, the codes series,  
proper keyblank, spacing and depth  
specifications, number of cuts, the drop,  
the number of drops, and the Framon  
starting and cut-to-cut specifications.

### PRODUCT DESCRIPTION:

AutoMaster is an automotive  
encyclopedia on computer, covering  
over 600 foreign and domestic vehicles  
including autos, trucks and motorcycles.  
Locksmiths can call up information on  
vehicles based on manufacturer, model,  
year or code series. Information for each  
vehicle includes code series, code  
locations, keyblank information, opening  
methods and tools, key cutting and  
miscellaneous information as well as an  
area to add user notes.

**SOFTWARE SPECIFICATIONS:** For  
use on IBM and IBM compatibles. The  
low memory requirements of  
AutoMaster allows for use with laptop  
and many palmtop computers, while  
leaving plenty of room for other  
software applications.

**FRIENDLINESS:** Installation of  
AutoMaster is completed by simply  
choosing the drive and "INSTALL." The  
program automatically installs onto the  
chosen hard drive. If desired,  
AutoMaster can be run from floppy disk.  
Updates, available annually, are loaded  
as easily.

Both the menus and the command  
line are presented in common English  
and avoid confusing "computerese"  
common with many software packages.

**FEATURES:** Initial opening of the

### DESCRIPTION:

Auto encyclopedia  
software.

### COMMENTS:

User  
friendly. Valuable info.  
Expanding info with OEM  
part numbers would be nice,  
but might drive up cost.

### TEST DRIVE RESULTS:

Simple to use. Builds  
confidence before working  
on vehicle. An invaluable  
and economical resource.

### COMMENTS AND SUGGESTIONS:

The friendliness of this software in itself  
makes it an asset. The quality and range  
of the information given is very good.  
And while a few minor discrepancies  
exist in the cutting specifications, they  
are well within acceptable limits, and  
any key cut to the specifications will  
work. A more extensive detailing of  
opening and key fitting methods would  
be helpful but not necessary.

The ability to record new information  
in the Special Notes, and the release of  
annual updates make this program a  
very credible and valuable tool.

Including HPC 1200 machine  
specifications and Continental Micro  
code card numbers would be a welcome  
addition to this package. And if any  
major changes are ever envisioned, a  
section listing OEM and aftermarket  
part numbers for the various locks and  
pinning kits would be invaluable, but  
would be such a tremendous  
undertaking that it would inevitably  
drive up the currently reasonable cost.

**CONCLUSION:** Overall, AutoMaster is  
very simple to use and gives more than  
enough information for a locksmith to  
feel comfortable before going to work  
on a vehicle. A locksmith does not have  
to be a computer "geek" to use this  
software. AutoMaster will save you time  
and is an invaluable reference tool in the  
hands of any locksmith.